

Supplementary Materials for

Comparison of histone H3K4me3 between IVF and ICSI technologies and between boy and girl offspring

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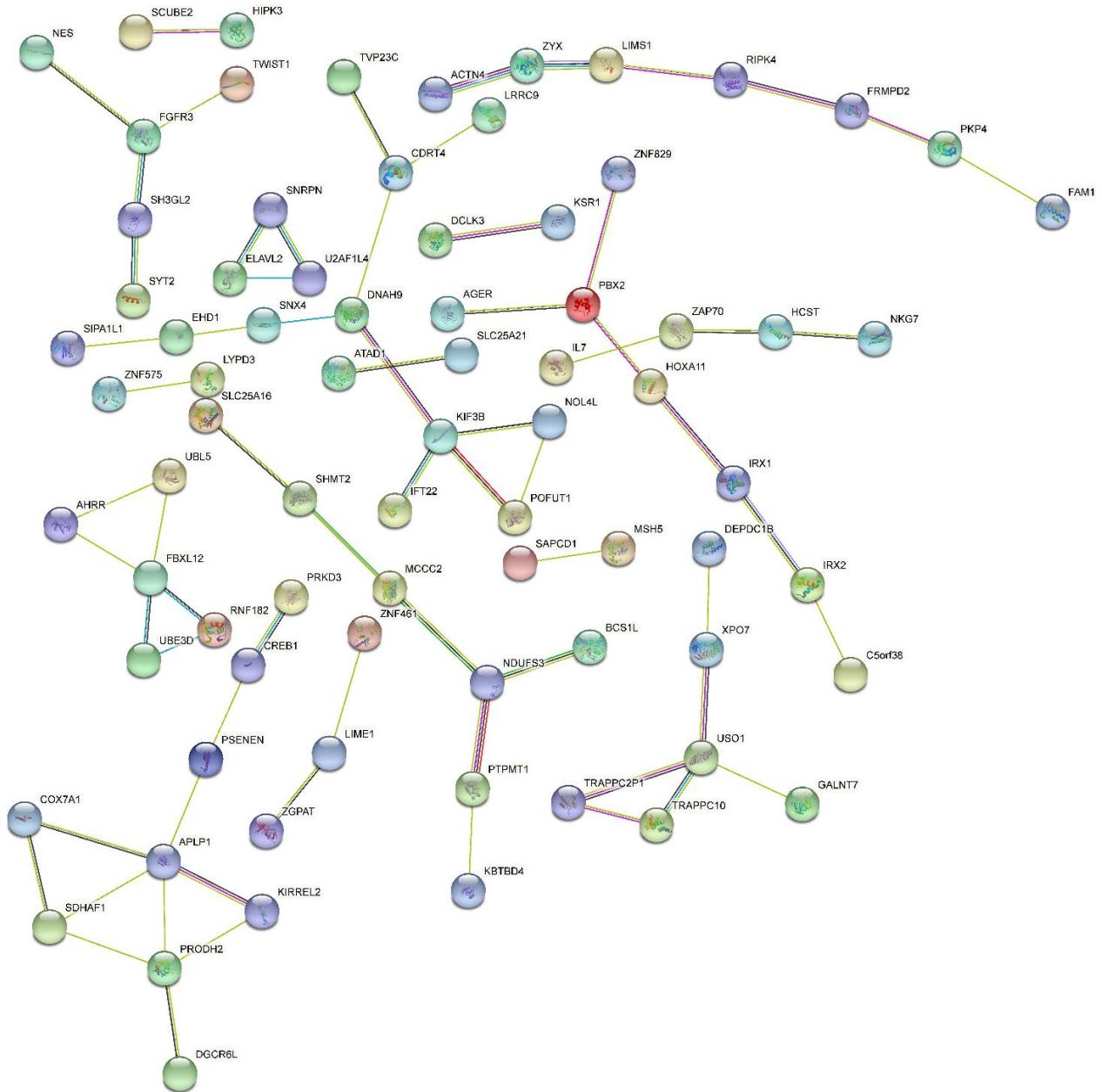
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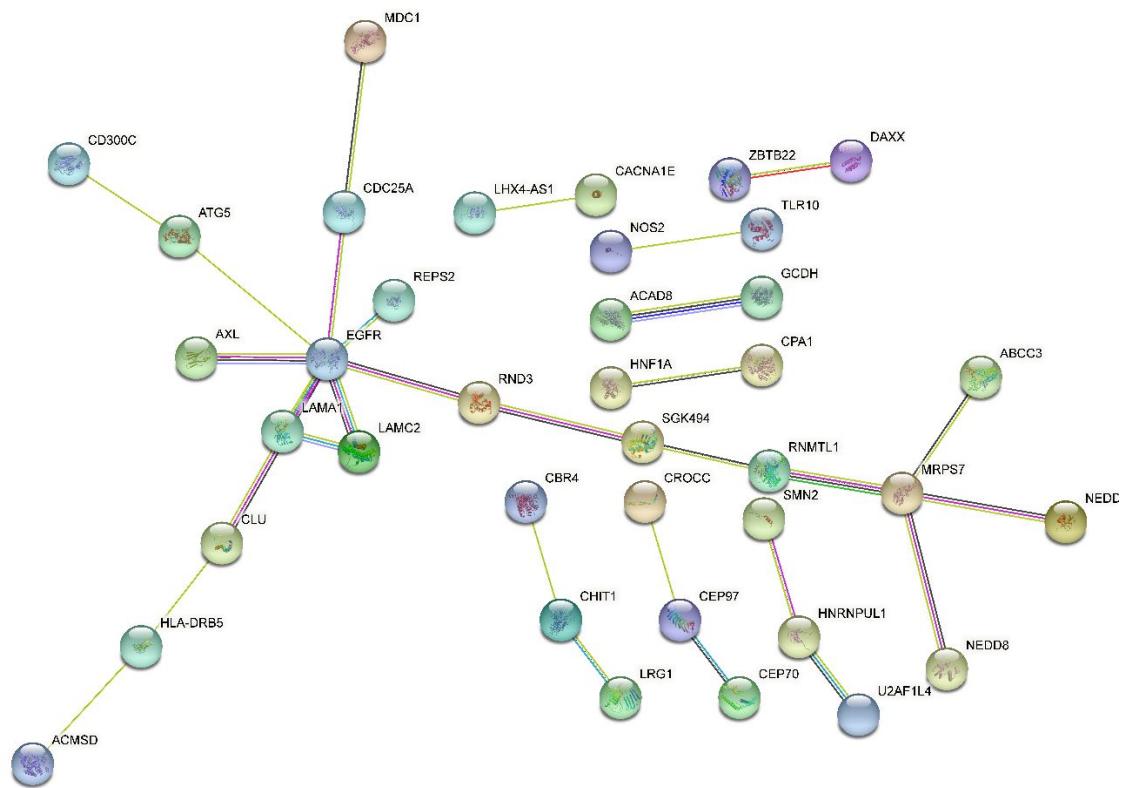
Supplementary materials and methods

Low-oxygen culture and intermittent hyperoxia exposure

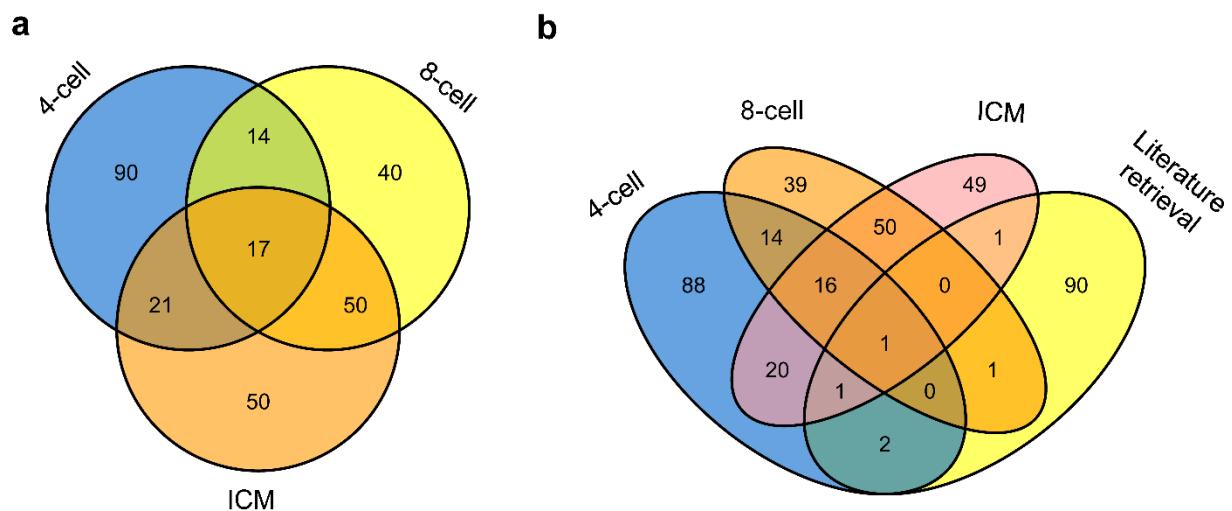
We used HTR-8/SVneo cells (passage numbers 25 to 32). Before treatment, we spread cells evenly on plates containing RPMI medium 1640 + GlutaMAX (Gibco) + 10% fetal bovine serum (Gibco) without antibiotics/antimycotics and maintained overnight in a standard incubator. For ‘low-oxygen culture’: we placed cells with various low-oxygen culture durations (0.5, 1, 2, 4 hours, 1, 2, 3, 4 days) into a tri-gas incubator (37 °C, could be set with a continuous flow of a hypoxic gas mixture containing 5% CO₂, 1% / 5% O₂, and N₂) in reverse chronological order (i.e., we placed cells with 4-day low-oxygen exposure first put into the tri-gas incubator, and cells with 0.5-hour low-oxygen culture period were the last). We removed cells with different low-oxygen culture durations simultaneously. We processed the low-oxygen culture in 1% and 5% O₂ using the same procedure for various oxygen tensions. For ‘intermittent hyperoxia exposure’: we placed cells in a tri-gas incubator (37°C, 5% CO₂, 5% O₂, and N₂) for 8 hours, in a standard incubator for 16 hours, then in a tri-gas incubator (37 °C, 5% CO₂, 5% O₂, and N₂) for 8 hours. We compared the results of intermittent hyperoxia exposure with persistent atmospheric oxygen culture (20% O₂ for 32 hours) and continuous low-oxygen culture (5% O₂ for 32 hours). To avoid air exposure, we placed cells with different low-oxygen culture periods in the corresponding targeted chambers. For negative controls (atmospheric oxygen culture), we always grew cells in a standard incubator. We collected cells when they were 80% to 90% confluent. We repeated each experiment three times.



Supplementary Figure S1. PPI network based on the genes with deH3K4me3 from ICSI-boys. The minimum required interaction score was set as 0.4. PPI, protein-protein interaction; deH3K4me3, differentially enriched tri-methylated-histone-H3-lysine-4; ICSI, intracytoplasmic sperm injection.



Supplementary Figure S2. PPI network based on the genes with deH3K4me3 from ICSI-girls. The minimum required interaction score was set as 0.4.



Supplementary Figure S3. Venn diagrams. **(a)** Overlapping results of transcription factor analysis for genes with H3K4me3 enrichment in 4-cell, 8-cell, and ICM stages. **(b)** Overlapping results of literature retrieval and transcription factor analysis for genes H3K4me3 enrichment in 4-cell, 8-cell, and ICM stages. ICM, inner cell mass.

Supplementary Table S1. The list of imprinted genes with entrezID.

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
<i>DIRAS3</i>	9077	<i>SLC22A18</i>	5002	<i>TCEB3C</i>	162699
<i>RNU5D-1</i>	26830	<i>H19</i>	283120	<i>PARD6G</i>	84552
<i>TP73</i>	7161	<i>PHLDA2</i>	7262	<i>DNMT1</i>	1786
<i>LRRTM1</i>	347730	<i>IGF2</i>	3481	<i>ZIM2</i>	23619
<i>ZDBF2</i>	57683	<i>CDKN1C</i>	1028	<i>PEG3</i>	5178
<i>GPR1</i>	2825	<i>KCNQ1</i>	3784	<i>MIMT1</i>	100073347
<i>NAP1L5</i>	266812	<i>IGF2AS</i>	51214	<i>MIR371A</i>	442916
<i>ERAP2</i>	64167	<i>ANO1</i>	55107	<i>NLRP2</i>	55655
<i>RHOBTB3</i>	22836	<i>ZC3H12C</i>	85463	<i>PEG3-AS1</i>	100169890
<i>VTRNA2-1</i>	100126299	<i>NTM</i>	50863	<i>PSIMCT-1</i>	100101490
<i>ADTRP</i>	84830	<i>ST8SIA1</i>	6489	<i>BLCAP</i>	10904
<i>FAM50B</i>	26240	<i>RBP5</i>	83758	<i>NNAT</i>	4826
<i>PXDC1</i>	221749	<i>HNF1A</i>	6927	<i>GDAP1L1</i>	78997
<i>AIM1</i>	829022	<i>ATP5F1EP2</i>	432369	<i>SGK2</i>	10110
<i>LIN28B</i>	389421	<i>RB1</i>	5925	<i>GNAS</i>	2778
<i>PLAGL1</i>	5325	<i>ESR2</i>	2100	<i>L3MBTL1</i>	26013
<i>HYMAI</i>	57061	<i>SMOC1</i>	64093	<i>GNASAS</i>	149775
<i>SLC22A2</i>	6582	<i>MEG3</i>	55384	<i>MIR298</i>	100126296
<i>SLC22A3</i>	6581	<i>DIO3</i>	1735	<i>SANG</i>	149775
<i>GRB10</i>	2887	<i>DLK1</i>	8788	<i>MIR296</i>	407022
<i>DDC</i>	1644	<i>MEG8</i>	79104	<i>DSCAM</i>	1826
<i>GLI3</i>	2737	<i>SNORD113-1</i>	767561	<i>DGCR6L</i>	85359
<i>HECW1</i>	23072	<i>SNORD114-1</i>	767577	<i>DGCR6</i>	8214
<i>HOXA4</i>	3201	<i>RTL1</i>	388015	<i>FAM99A</i>	387742
<i>RAC1</i>	5879	<i>DIO3OS</i>	64150		
<i>PEG10</i>	23089	<i>MAGEL2</i>	54551		
<i>MAGI2</i>	9863	<i>UBE3A</i>	7337		
<i>SGCE</i>	8910	<i>MKRN3</i>	7681		
<i>PPP1R9A</i>	55607	<i>NPAP1</i>	23742		
<i>TFPI2</i>	7980	<i>ATP10A</i>	57194		
<i>DLX5</i>	1749	<i>SNORD109B</i>	338429		
<i>CCDC71L</i>	168455	<i>SNORD115-48</i>	100033822		
<i>CPA4</i>	51200	<i>SNORD116</i>	692236		
<i>MEST</i>	4232	<i>SNRPN</i>	6638		
<i>COPG2IT1</i>	53844	<i>SNORD109A</i>	338428		
<i>MESTIT1</i>	317751	<i>SNORD108</i>	338427		
<i>KLF14</i>	136259	<i>SNORD107</i>	91380		
<i>SVOPL</i>	136306	<i>PWAR6</i>	100506965		
<i>DLGAP2</i>	9228	<i>PWCR1</i>	692236		
<i>KCNK9</i>	51305	<i>NDN</i>	4692		
<i>ZFAT</i>	57623	<i>SNORD64</i>	347686		
<i>PEG13</i>	359809	<i>SNURF</i>	8926		
<i>ZFAT-AS1</i>	594840	<i>RASGRF1</i>	5923		
<i>GLIS3</i>	169792	<i>IRAIN</i>	104472848		
<i>WT1-AS</i>	51352	<i>NAA60</i>	79903		
<i>WT1</i>	7490	<i>ZNF597</i>	146434		
<i>KCNQ1OT1</i>	10984	<i>CMTM1</i>	113540		
<i>OSBPL5</i>	114879	<i>ZFP90</i>	146198		
<i>KCNQ1DN</i>	55539	<i>TP53</i>	7157		
<i>INS</i>	3630	<i>ZNF396</i>	252884		

Supplementary Table S2. The list of cardiovascular-disease-associated genes with entrez ID

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
ACLY	47	GLRX3	10539	CSF1	1435
CASR	846	UBD	10537	CHRM1	1128
CD2	914	CCNH	902	AGT	183
CHRNA4	1137	PDK2	5164	AHR	196
COX4I1	1327	STX1A	6804	VEGFA	7422
GGCX	2677	GHRL	51738	GRIN2B	2904
CCND1	595	NOS2	4843	ADRA2B	151
EPHA3	2042	ARC	23237	PGR	5241
INPPL1	3636	TGFB2	7042	HDAC3	8841
EPAS1	2034	PDE2A	5138	PANK4	55229
PFKM	5213	STC1	6781	PITX2	5308
CLDN1	9076	SOAT2	8435	ADAM17	6868
DLG4	1742	TNFRSF11B	4982	PRKCB	5579
CLDN3	1365	SREBF2	6721	RAPGEF1	2889
AQP3	360	CKB	1152	IL6ST	3572
CLCNKA	1187	AVPR2	554	ICAM1	3383
GUCY1A1	2982	CDC42	998	SERPINE2	5270
OPRL1	4987	SLC9A3	6550	AKAP10	11216
BHLHE40	8553	IL1B	3553	RGS4	5999
AVP	551	COL1A2	1278	AQP1	358
GCG	2641	VCAM1	7412	AQP2	359
AVPR1A	552	CALCA	796	AQP5	362
IGF1R	3480	GNAI2	2771	BAX	581
PENK	5179	HSF1	3297	TP53	7157
SLC6A6	6533	ADORA2A	135	IGF1	3479
ITGA1	3672	CASP3	836	FGF2	2247
IL13	3596	GNAI3	2773	MET	4233
INSR	3643	HTR1B	3351	CDK5	1020
FSTL1	11167	PTGS2	5743	DRD1	1812
QSOX1	5768	TACR1	6869	PLD1	5337
INA	9118	DYNLL1	8655	CPS1	1373
IGFBP1	3484	CCN2	1490	CYP11B1	1584
GNRH1	2796	PLA2G2A	5320	LPL	4023
GH1	2688	KDR	3791	HGF	3082
JAK1	3716	ADORA2B	136	NOS1	4842
PTH	5741	SLC8A1	6546	CREBBP	1387
LEP	3952	PCSK9	255738	CD36	948
BRCA1	672	BDNF	627	CPT1B	1375
NPPB	4879	SGK1	6446	AGTR2	186
MDK	4192	DFFB	1677	TAC1	6863
GHR	2690	SPARC	6678	VDR	7421
EGFR	1956	GRK2	156	ERBB2	2064
TIMP4	7079	SOAT1	6646	MAPK14	1432
NFIX	4784	OLR1	4973	CFTR	1080
PPARG	5468	CCL2	6347	BGLAP	632
ASIP	434	CIT	11113	CAV1	857
FGF7	2252	DGAT1	8694	ABCC2	1244
ESR2	2100	EPHX2	2053	MAPK3	5595
LCN2	3934	INS	3630	GFAP	2670
AKAP6	9472	KCNA5	3741	ADORA1	134

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
MMP2	4313	SLC2A5	6518	CRHR2	1395
ABCB1	5243	POR	5447	TJP2	9414
ESRRRA	2101	HTT	3064	NTF4	4909
NPY	4852	TXN	7295	HS3ST1	9957
CYP4A11	1579	NKX2-1	7080	MAS1	4142
BMP4	652	FTH1	2495	FGG	2266
SOCS3	9021	CYSLTR1	10800	MAP3K8	1326
CHGA	1113	NAT2	10	NRG1	3084
CSPG4	1464	ERBB4	2066	KIF3C	3797
GRK3	157	MSN	4478	ARRB2	409
ANGPT2	285	MFN2	9927	FBN1	2200
CASP8	841	MBTPS1	8720	HMGCR	3156
EDN1	1906	MAOB	4129	NPY5R	4889
GAD1	2571	ADARB1	104	HAND2	9464
BTG2	7832	BIRC3	330	CAMK1	8536
SOD1	6647	TKT	7086	NPR3	4883
IL2	3558	EGLN3	112399	RPS6KB1	6198
SDC1	6382	HTRA1	5654	PPP1CB	5500
RGS5	8490	IGF2R	3482	PLEC	5339
CYP1A1	1543	LYN	4067	RB1	5925
SOD2	6648	INHBA	3624	CCN1	3491
ANXA1	301	PRLHR	2834	PSEN1	5663
BDKRB1	623	CAT	847	CPB2	1361
SDC4	6385	HAS2	3037	AHCY	191
NPPA	4878	NOTCH3	4854	JAK2	3717
MT3	4504	NR4A1	3164	SLC8A2	6543
HRAS	3265	PTK2	5747	GSK3A	2931
ABO	28	KL	9365	SP4	6671
CREB1	1385	LMNA	4000	RIMS1	22999
PRKAA2	5563	PAK2	5062	ECE1	1889
NFKB1	4790	CAPN2	824	DRD5	1816
IL18	3606	SLC12A2	6558	BEGAIN	57596
HNRNPA0B	3182	MADD	8567	RBCK1	10616
PPP3CA	5530	CLDN11	5010	RETSAT	54884
HMOX1	3162	PRKCG	5582	CAPN3	825
GABRA1	2554	YBX1	4904	SEMA6B	10501
CCND2	894	FBXO2	26232	MTR	4548
STAT5B	6777	SLC1A1	6505	SYT5	6861
GRIK5	2901	ITPR1	3708	GNB5	10681
NGFR	4804	SLIT2	9353	CASP6	839
SLC17A6	57084	RNPEP	6051	CDK4	1019
PDGFRA	5156	DVL1	1855	FZD2	2535
ADM	133	TNNNT1	7138	TXNRD1	7296
E2F1	1869	SIPA1L1	26037	MTHFD1	4522
IL5	3567	PTAFR	5724	CXCR4	7852
HIF1A	3091	PLCB1	23236	STAT1	6772
TRHDE	29953	HMBS	3145	FOSL1	8061
PRKN	5071	BMP2	650	ABCA2	20
GHSR	2693	ADRA1B	147	ABCG5	64240
CRH	1392	ANGPT1	284	GSR	2936

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
CNR2	1269	NEO1	4756	SST	6750
SHANK3	85358	FBN2	2201	FGB	2244
ATF2	1386	MRAS	22808	ANXA5	308
MAG	4099	COL5A1	1289	NTRK1	4914
RPS2	6187	KCNMB1	3779	GATA2	2624
SERPIND1	3053	HNRNPK	3190	MXD3	83463
CABIN1	23523	LTC4S	4056	HIVEP2	3097
AOC1	26	JAG2	3714	ITGA7	3679
FOXJ1	2302	BRS3	680	CDH13	1012
NTF3	4908	RGS14	10636	QDPR	5860
ARRB1	408	AOX1	316	ATP5F1A	498
TNNT2	7139	HSPE1	3336	THRBR	7068
RTN1	6252	PSEN2	5664	NFE2L2	4780
LIMK1	3984	ADRB2	154	PDE3A	5139
NPM1	4869	DNM1L	10059	CTSB	1508
MAP2K5	5607	PROKR1	10887	NUP155	9631
HRH2	3274	MAP2	4133	LONP1	9361
PLAU	5328	RPL6	6128	CES3	23491
A2M	2	HYAL2	8692	CRYAA	1409
SNAP29	9342	CTNNB1	1499	RET	5979
HEY1	23462	ATF4	468	CXCR2	3579
NOG	9241	PLCB4	5332	GSS	2937
CCL3	6348	ADCY8	114	CMA1	1215
APOB	338	SLK	9748	CALM1	801
TRDN	10345	NFIB	4781	ALB	213
ACSM3	6296	UCP3	7352	PAH	5053
ACTB	60	DLL1	28514	ADD3	120
GDNF	2668	MASP1	5648	LDHB	3945
GAST	2520	DGKZ	8525	RARG	5916
CCNG1	900	SNCB	6620	SCN4B	6330
LEPR	3953	PLD2	5338	NTN1	9423
CD38	952	DPP7	29952	SCT	6343
FABP2	2169	HSPD1	3329	MCL1	4170
ADAM10	102	TH	7054	BCL2L1	598
EPO	2056	TIMP2	7077	BSN	8927
NQO1	1728	VLDLR	7436	AIF1	199
RELN	5649	FGF8	2253	CD63	967
IL17A	3605	NME7	29922	IL10	3586
MUC4	4585	PPP3CB	5532	CD4	920
CCNB1	891	DDB1	1642	ROBO1	6091
SNCA	6622	AP2B1	163	F9	2158
HSPA4	3308	UBTF	7343	AKT3	10000
CAND2	23066	TIMM8B	26521	NRAS	4893
GLUD1	2746	COX5B	1329	PF4	5196
SLC17A8	246213	CTSK	1513	TBXAS1	6916
SLC4A2	6522	PGM1	5236	GJA1	2697
WNT2B	7482	ARF6	382	HK3	3101
PLCD1	5333	NRXN1	9378	TSC1	7248
NOTCH2	4853	PTPN6	5777	NUPR1	26471
PRSS12	8492	PTPRF	5792	DMD	1756

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
<i>LBR</i>	3930	<i>FKBP1A</i>	2280	<i>HAMP</i>	57817
<i>CD3D</i>	915	<i>EDN2</i>	1907	<i>RRAD</i>	6236
<i>HAND1</i>	9421	<i>APOA4</i>	337	<i>MEN1</i>	4221
<i>TLR4</i>	7099	<i>GHRH</i>	2691	<i>GPR182</i>	11318
<i>ACAT1</i>	38	<i>APOC3</i>	345	<i>PLAT</i>	5327
<i>TSHR</i>	7253	<i>SPN</i>	6693	<i>ELN</i>	2006
<i>MUC5AC</i>	4586	<i>ACTA1</i>	58	<i>PTN</i>	5764
<i>CD44</i>	960	<i>ADK</i>	132	<i>SQSTM1</i>	8878
<i>PRKCA</i>	5578	<i>UTS2</i>	10911	<i>CCNE1</i>	898
<i>CANX</i>	821	<i>ARNTL2</i>	56938	<i>SYN3</i>	8224
<i>CD80</i>	941	<i>CACNA2D2</i>	9254	<i>MAPT</i>	4137
<i>KITLG</i>	4254	<i>HOXA1</i>	3198	<i>IL6R</i>	3570
<i>INSL6</i>	11172	<i>GPC3</i>	2719	<i>CFD</i>	1675
<i>LIPE</i>	3991	<i>PLCG1</i>	5335	<i>SLC11A1</i>	6556
<i>IDH1</i>	3417	<i>LAMP2</i>	3920	<i>TGFBR3</i>	7049
<i>SELP</i>	6403	<i>F2R</i>	2149	<i>ALAD</i>	210
<i>MYO1C</i>	4641	<i>APOA1</i>	335	<i>IL11</i>	3589
<i>GAL</i>	51083	<i>MUC2</i>	4583	<i>ESR1</i>	2099
<i>FLT1</i>	2321	<i>IRF1</i>	3659	<i>EPHX1</i>	2052
<i>FGA</i>	2243	<i>MMP7</i>	4316	<i>LIPA</i>	3988
<i>CXCL12</i>	6387	<i>ATP1A2</i>	477	<i>ADD2</i>	119
<i>COL3A1</i>	1281	<i>OXTR</i>	5021	<i>TREH</i>	11181
<i>MT1A</i>	4489	<i>LDHA</i>	3939	<i>ENSA</i>	2029
<i>NES</i>	10763	<i>COL18A1</i>	80781	<i>CD59</i>	966
<i>MUC1</i>	4582	<i>CTSL</i>	1514	<i>POLB</i>	5423
<i>KLF15</i>	28999	<i>IGFBP3</i>	3486	<i>PTGIS</i>	5740
<i>HP</i>	3240	<i>PDGFA</i>	5154	<i>FN1</i>	2335
<i>MYL2</i>	4633	<i>CLCNKB</i>	1188	<i>ITGB1</i>	3688
<i>SLC2A1</i>	6513	<i>ANXA2</i>	302	<i>FGFR4</i>	2264
<i>MGP</i>	4256	<i>PDE4D</i>	5144	<i>CRYBA1</i>	1411
<i>CASQ2</i>	845	<i>FBLN5</i>	10516	<i>AK1</i>	203
<i>CBS</i>	875	<i>ADA</i>	100	<i>CP</i>	1356
<i>TLE5</i>	166	<i>IL1RL1</i>	9173	<i>COL5A2</i>	1290
<i>BDKRB2</i>	624	<i>SYK</i>	6850	<i>DRD2</i>	1813
<i>CALM3</i>	808	<i>CCND3</i>	896	<i>SHH</i>	6469
<i>DPYSL2</i>	1808	<i>APOA5</i>	116519	<i>EGF</i>	1950
<i>IL3</i>	3562	<i>OPTN</i>	10133	<i>PODXL</i>	5420
<i>CDO1</i>	1036	<i>CYP2D6</i>	1565	<i>FGFR2</i>	2263
<i>AQP8</i>	343	<i>TGFA</i>	7039	<i>FABP1</i>	2168
<i>MYH11</i>	4629	<i>GAS6</i>	2621	<i>ADCY5</i>	111
<i>MYOC</i>	4653	<i>CNP</i>	1267	<i>BCAN</i>	63827
<i>HK1</i>	3098	<i>IL4</i>	3565	<i>HRG</i>	3273
<i>PAX6</i>	5080	<i>MSTN</i>	2660	<i>CST3</i>	1471
<i>TXN2</i>	25828	<i>CALM2</i>	805	<i>KLKB1</i>	3818
<i>CTLA4</i>	1493	<i>REN</i>	5972	<i>ALAS1</i>	211
<i>HSD11B2</i>	3291	<i>APOE</i>	348	<i>GPT</i>	2875
<i>CD55</i>	1604	<i>GLRX</i>	2745	<i>NDUFV2</i>	4729
<i>PKM</i>	5315	<i>PPBP</i>	5473	<i>PDK4</i>	5166
<i>CRYAB</i>	1410	<i>SCN2B</i>	6327	<i>ADCYAP1R1</i>	117
<i>BGN</i>	633	<i>ARNT2</i>	9915	<i>NCOA6</i>	23054

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
GCLC	2729	ALDOC	230	DBH	1621
IGFBP5	3488	NUDT1	4521	CRP	1401
DPP6	1804	PDCD4	27250	NPTN	27020
CREM	1390	BIRC5	332	HSPA8	3312
ATP2A3	489	GNAS	2778	CEL	1056
PTGER4	5734	RBM10	8241	PICALM	8301
STK39	27347	NEFH	4744	PNOC	5368
NR2F2	7026	TPI1	7167	GSTP1	2950
RHO	6010	MAOA	4128	TCF4	6925
CLIP2	7461	GATA6	2627	STAT5A	6776
BSG	682	ALDH2	217	ASAHI	427
TRPV1	7442	VEGFD	2277	ADRA1A	148
UCP2	7351	C3	718	GIPR	2696
PPP1CA	5499	GJB1	2705	CSRP3	8048
PROC	5624	F2RL1	2150	MYLK2	85366
SLC22A5	6584	SHBG	6462	DHFR	1719
ABCC9	10060	FABP5	2171	ATP1A1	476
PPARD	5467	SORT1	6272	YWHAZ	7534
FSHB	2488	RGCC	28984	IFT172	26160
LGALS2	3957	YME1L1	10730	GOT2	2806
DPM2	8818	MYH6	4624	CHRM4	1132
SLC18A1	6570	BCHE	590	GABBR1	2550
KCNMA1	3778	GCLM	2730	KCNK10	54207
NDUFS6	4726	BCL2	596	SH2B3	10019
MEFV	4210	FZD9	8326	GC	2638
PDHA1	5160	PTP4A2	8073	YWHAH	7533
SLC4A1	6521	ID1	3397	ACAN	176
HSPB1	3315	PIK3CB	5291	ATP2C2	9914
CYP11A1	1583	ATP1B4	23439	PDGFRB	5159
ABCC6	368	MPP4	58538	ADRB1	153
RALGAPA1	253959	ADAM19	8728	CEBDP	1052
ERAP1	51752	GCK	2645	CARD9	64170
SLC6A11	6538	NPR1	4881	ZFP36	7538
HMGCS2	3158	ADRA2A	150	NDRG2	57447
NEFM	4741	EDNRA	1909	ADCY3	109
CACNA2D1	781	POLG	5428	SIRT2	22933
ATP5MC2	517	IRS1	3667	LPAR1	1902
HCN1	348980	HSF2	3298	IL23A	51561
FGFR1	2260	PTPN5	84867	BEX3	27018
GOT1	2805	CAPN1	823	C5	727
BBC3	27113	GRIK2	2898	IL1A	3552
OXT	5020	LTBP1	4052	CACNA1H	8912
LHB	3972	LIF	3976	NOP58	51602
HNMT	3176	PHLDA1	22822	KCND3	3752
CYP2C19	1557	NCAM1	4684	PAWR	5074
SMO	6608	FGFR3	2261	LDLR	3949
ROCK2	9475	PTGES	9536	THY1	7070
ANXA3	306	OPRK1	4986	KIT	3815
COL1A1	1277	FGF1	2246	HSPA2	3306
ISL1	3670	CHI3L1	1116	TACR2	6865

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
<i>EIF2S1</i>	1965	<i>ACP1</i>	52	<i>GAPDH</i>	2597
<i>TNFRSF1A</i>	7132	<i>UMOD</i>	7369	<i>PLAUR</i>	5329
<i>CASP1</i>	834	<i>KCNN2</i>	3781	<i>FLT4</i>	2324
<i>CD8A</i>	925	<i>CDKN1A</i>	1026	<i>NME1</i>	4830
<i>ACADVL</i>	37	<i>HCN4</i>	10021	<i>CKM</i>	1158
<i>SPP1</i>	6696	<i>LIPC</i>	3990	<i>SLC4A4</i>	8671
<i>ABCG8</i>	64241	<i>RASA1</i>	5921	<i>CSNK2A1</i>	1457
<i>BARD1</i>	580	<i>IMPA1</i>	3612	<i>BRAF</i>	673
<i>GRIA1</i>	2890	<i>ASS1</i>	445	<i>RALBP1</i>	10928
<i>APOA2</i>	336	<i>MBP</i>	4155	<i>LTBP3</i>	4054
<i>ENO2</i>	2026	<i>TMBIM6</i>	7009	<i>KCNJ8</i>	3764
<i>USH2A</i>	7399	<i>PRKCH</i>	5583	<i>ITIH4</i>	3700
<i>B2M</i>	567	<i>PIK3R1</i>	5295	<i>ADAM2</i>	2515
<i>NF1</i>	4763	<i>MAF</i>	4094	<i>GJA5</i>	2702
<i>AGER</i>	177	<i>CSTB</i>	1476	<i>NR1D1</i>	9572
<i>MAP4K3</i>	8491	<i>PTPRJ</i>	5795	<i>APOC1</i>	341
<i>ENTPD2</i>	954	<i>ADRB3</i>	155	<i>MLYCD</i>	23417
<i>FCGR3A</i>	2214	<i>ABCB6</i>	10058	<i>SDHA</i>	6389
<i>NT5E</i>	4907	<i>SRM</i>	6723	<i>CYP1B1</i>	1545
<i>GAD2</i>	2572	<i>OTC</i>	5009	<i>COMT</i>	1312
<i>IGFBP2</i>	3485	<i>PPP1R1A</i>	5502	<i>CACNA1G</i>	8913
<i>ADD1</i>	118	<i>FZD3</i>	7976	<i>XYLT1</i>	64131
<i>S100B</i>	6285	<i>AKAP8</i>	10270	<i>SLC6A3</i>	6531
<i>TRPC1</i>	7220	<i>HADHA</i>	3030	<i>HDLBP</i>	3069
<i>KCNN3</i>	3782	<i>XRCC5</i>	7520	<i>RCAN1</i>	1827
<i>GPX4</i>	2879	<i>AHSG</i>	197	<i>PTGER3</i>	5733
<i>TRIM50</i>	135892	<i>FXYD1</i>	5348	<i>ATOX1</i>	475
<i>TYMS</i>	7298	<i>GFRA1</i>	2674	<i>HIP1R</i>	9026
<i>SCNN1B</i>	6338	<i>GNB1</i>	2782	<i>SLC6A2</i>	6530
<i>CNTN5</i>	53942	<i>ADNP</i>	23394	<i>XPNPEP2</i>	7512
<i>NR1D2</i>	9975	<i>LCAT</i>	3931	<i>NR3C2</i>	4306
<i>XYLT2</i>	64132	<i>ATP2B3</i>	492	<i>CACNA1C</i>	775
<i>EPB41L3</i>	23136	<i>TLE4</i>	7091	<i>EGR4</i>	1961
<i>MDH2</i>	4191	<i>NFKBIA</i>	4792	<i>GGT1</i>	2678
<i>SLC19A1</i>	6573	<i>KCNIP2</i>	30819	<i>CITED2</i>	10370
<i>XRCC1</i>	7515	<i>PSMA6</i>	5687	<i>MC4R</i>	4160
<i>ENPP2</i>	5168	<i>GRIA4</i>	2893	<i>HTR1A</i>	3350
<i>TGFB1</i>	7040	<i>COL11A1</i>	1301	<i>EIF4E</i>	1977
<i>MME</i>	4311	<i>HTR2A</i>	3356	<i>P2RX6</i>	9127
<i>GRIN2A</i>	2903	<i>SCNN1G</i>	6340	<i>HTR4</i>	3360
<i>MYC</i>	4609	<i>TPH2</i>	121278	<i>PRKCZ</i>	5590
<i>ADRA1D</i>	146	<i>AKR1A1</i>	10327	<i>CRHR1</i>	1394
<i>TNFRSF8</i>	943	<i>WFDC1</i>	58189	<i>F13A1</i>	2162
<i>SLC9A3R2</i>	9351	<i>GPX1</i>	2876	<i>ASL</i>	435
<i>NUCKS1</i>	64710	<i>GALNT1</i>	2589	<i>FMR1</i>	2332
<i>PCSK2</i>	5126	<i>FZD4</i>	8322	<i>SLC12A3</i>	6559
<i>KCNIP1</i>	30820	<i>GNA12</i>	2768	<i>SLC31A1</i>	1317
<i>GSK3B</i>	2932	<i>KCNJ11</i>	3767	<i>PPP5C</i>	5536
<i>MEGF8</i>	1954	<i>ABCC8</i>	6833	<i>RPS6</i>	6194
<i>PI4KA</i>	5297	<i>GSTM2</i>	2946	<i>TRPC5</i>	7224

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
<i>SCGB1A1</i>	7356	<i>FUCA1</i>	2517	<i>PTGDS</i>	5730
<i>NTRK2</i>	4915	<i>ID2</i>	3398	<i>TPM4</i>	7171
<i>ADCYAP1</i>	116	<i>TRIM28</i>	10155	<i>DUSP6</i>	1848
<i>MFGE8</i>	4240	<i>SLC24A1</i>	9187	<i>TGFB3</i>	7043
<i>GSTM1</i>	2944	<i>HADHB</i>	3032	<i>ADRA2C</i>	152
<i>MAPK1</i>	5594	<i>ADAR</i>	103	<i>DIO3</i>	1735
<i>PYGB</i>	5834	<i>PTPRN</i>	5798	<i>CYBA</i>	1535
<i>PSMB7</i>	5695	<i>DNAH10</i>	196385	<i>PTEN</i>	5728
<i>ALOX5AP</i>	241	<i>CACNB2</i>	783	<i>ATP1A3</i>	478
<i>SLC6A1</i>	6529	<i>SLC29A1</i>	2030	<i>RENBP</i>	5973
<i>OCLN</i>	100506658	<i>REG1A</i>	5967	<i>ID3</i>	3399
<i>GNAZ</i>	2781	<i>HBB</i>	3043	<i>SLC6A4</i>	6532
<i>MMP14</i>	4323	<i>PDE4B</i>	5142	<i>SLC22A4</i>	6583
<i>SERPINI1</i>	5274	<i>PPP2CA</i>	5515	<i>KCNE1</i>	3753
<i>FMO3</i>	2328	<i>HTR1D</i>	3352	<i>NDST1</i>	3340
<i>CXCL2</i>	2920	<i>THRA</i>	7067	<i>UNC5B</i>	219699
<i>AKT2</i>	208	<i>ENO3</i>	2027	<i>MBL2</i>	4153
<i>IKBKB</i>	3551	<i>GFER</i>	2671	<i>ALOX5</i>	240
<i>SLC25A4</i>	291	<i>ENO1</i>	2023	<i>NRP1</i>	8829
<i>MYL3</i>	4634	<i>GOSR2</i>	9570	<i>PKD1</i>	5310
<i>PACS1</i>	55690	<i>TACR3</i>	6870	<i>GPNMB</i>	10457
<i>LGALS3</i>	3958	<i>ARG2</i>	384	<i>KCNT1</i>	57582
<i>SRD5A1</i>	6715	<i>NAE1</i>	8883	<i>ACVRL1</i>	94
<i>RASA2</i>	5922	<i>STS</i>	412	<i>TGM2</i>	7052
<i>ABCF1</i>	23	<i>NOS1AP</i>	9722	<i>PTPRZ1</i>	5803
<i>CFL1</i>	1072	<i>SLC1A3</i>	6507	<i>RXRA</i>	6256
<i>CD28</i>	940	<i>IL4R</i>	3566	<i>BMPR1A</i>	657
<i>TRHR</i>	7201	<i>SFTPC</i>	6440	<i>PRL</i>	5617
<i>AKAP12</i>	9590	<i>ENTPD1</i>	953	<i>TIMP3</i>	7078
<i>MEOX2</i>	4223	<i>JUP</i>	3728	<i>NR1H3</i>	10062
<i>RPL28</i>	6158	<i>LOX</i>	4015	<i>ACACA</i>	31
<i>GABRD</i>	2563	<i>ROCK1</i>	6093	<i>WIPF1</i>	7456
<i>G6PD</i>	2539	<i>RGS2</i>	5997	<i>MTHFR</i>	4524
<i>APOD</i>	347	<i>RXRG</i>	6258	<i>PTPN11</i>	5781
<i>PDE5A</i>	8654	<i>CACNA1D</i>	776	<i>ATF3</i>	467
<i>MAPK8</i>	5599	<i>PRKAR2B</i>	5577	<i>HMOX2</i>	3163
<i>NSMF</i>	26012	<i>FOSL2</i>	2355	<i>COQ7</i>	10229
<i>MFN1</i>	55669	<i>OGT</i>	8473	<i>NEDD4</i>	4734
<i>ATP5PF</i>	522	<i>SLC11A2</i>	4891	<i>MDH1</i>	4190
<i>STAR</i>	6770	<i>STXBP2</i>	6813	<i>PRKAR2A</i>	5576
<i>ABCC5</i>	10057	<i>DLG2</i>	1740	<i>BTG1</i>	694
<i>PIK3R2</i>	5296	<i>DAB2</i>	1601	<i>CACNA1E</i>	777
<i>AKR1B1</i>	231	<i>SERPINH1</i>	871	<i>UBE2I</i>	7329
<i>HNF1A</i>	6927	<i>PPARA</i>	5465	<i>PCMT1</i>	5110
<i>DIO2</i>	1734	<i>KCNJ1</i>	3758	<i>ATP1B1</i>	481
<i>LRP2</i>	4036	<i>HRH3</i>	11255	<i>MARK1</i>	4139
<i>BARHL1</i>	56751	<i>TTR</i>	7276	<i>CDKN1B</i>	1027
<i>RAD50</i>	10111	<i>HTR2B</i>	3357	<i>PNMT</i>	5409
<i>HRH1</i>	3269	<i>CLDN5</i>	7122	<i>SOD3</i>	6649
<i>CHEK2</i>	11200	<i>CACNB4</i>	785	<i>HNRNPM</i>	4670

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
ABCA1	19	YY1	7528	MTOR	2475
SLC8A3	6547	LTBP2	4053	VDAC1	7416
SLC2A3	6515	WT1	7490	KCNJ10	3766
SLC40A1	30061	ILK	3611	HPGD	3248
PTHLH	5744	LEF1	51176	FKBP1B	2281
PKLR	5313	SLC22A1	6580	SCARB1	949
MYH9	4627	TNFRSF4	7293	GGT7	2686
HSD17B4	3295	GJA4	2701	SLC17A7	57030
SLC4A3	6508	FABP3	2170	TFRC	7037
KCNH2	3757	CDK6	1021	ITPR2	3709
CAMK2D	817	P2RY1	5028	TYRO3	7301
SND1	27044	SNAP25	6616	PEBP1	5037
TNNI3	7137	HSPB2	3316	GABRA6	2559
FGD4	121512	CNTF	1270	ACHE	43
IGFALS	3483	RAF1	5894	ARNTL	406
PLCB3	5331	KLRK1	22914	PDE1A	5136
TAP1	6890	FOXO1	2308	ACADS	35
TSC2	7249	SULT1A1	6817	PDX1	3651
CYP11B2	1585	PLA2G4A	5321	MVP	9961
CDH2	1000	VEGFC	7424	EPOR	2057
UFD1	7353	PDGFB	5155	YWHAB	7529
ACP2	53	VIM	7431	ACE	1636
ATP7A	538	CALR	811	PSMA2	5683
GALR1	2587	PCNA	5111	PRKCE	5581
AQP4	361	EDNRB	1910	OPN1SW	611
MERTK	10461	SLC7A3	6586	SIX1	6495
TBXA2R	6915	RGS7	6000	GTF2IRD1	9569
TRH	7200	EGLN1	54583	PSMC3	5702
PRKCD	5580	PDPK1	5170	P4HB	5034
CACNG4	27092	KYNU	8942	RAMP2	10266
CYTH1	9267	STAT3	6774	HSD11B1	3290
OLFM1	10439	TPH1	7166	PSMB1	5689
ALDH1A2	8854	APAF1	317	BECN1	8678
CROT	54677	DPYSL5	56896	DDR1	780
MAPK9	5601	DUSP1	1843	PTGS1	5742
EGR1	1958	SLC26A4	5172	DCC	1630
GLP1R	2740	DGKB	1607	F3	2152
IREB2	3658	TGFBR1	7046	PPFIA4	8497
SELE	6401	GBP2	2634	DLAT	1737
MSX2	4488	NOX4	50507	FEZ2	9637
CNR1	1268	VTN	7448	PYGM	5837
MSI1	4440	ASIC1	41	TMED2	10959
SLC34A1	6569	BAD	572	ASCL1	429
NR3C1	2908	TPM1	7168	TTPA	7274
MAP2K6	5608	ACO1	48	OGA	10724
ATP2A1	487	IL15	3600	CDKN2A	1029
MYBPH	4608	PFKFB3	5209	CEBPB	1051
TMPO	7112	AGTR1	185	TFPI2	7980
TCEA2	6919	MCAM	4162	JUN	3725
PPP1CC	5501	OBSCN	84033	CSF1R	1436

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
ATP2A2	488	DAB2IP	153090	SERPINE1	5054
NF2	4771	CACNA1A	773	CAP2	10486
CAST	831	ALDH3A1	218	TIMM44	10469
FBXO32	114907	DDIT3	1649	NOX1	27035
AR	367	GRIN1	2902	TGFB2	7048
SIK1	150094	CALU	813	SARDH	1757
GATM	2628	IFNG	3458	CRK	1398
NOTCH1	4851	FOS	2353	HSPA1B	3304
SNAP91	9892	HSPA5	3309	SCNN1A	6337
G6PC3	92579	EMD	2010	KCNB1	3745
SFRP1	6422	JUNB	3726	KCNE2	9992
MAT2A	4144	SLC12A1	6557	P2RX4	5025
TRPC3	7222	XPO1	7514	AKT1	207
CLIC6	54102	GNAQ	2776	FAT1	2195
SCN5A	6331	CAMK2A	815	PPM1F	9647
SCN9A	6335	AIFM1	9131	PCSK5	5125
APP	351	CLU	1191	CCN3	4856
GATA4	2626	AP3M1	26985	HPX	3263
VDAC2	7417	HK2	3099	LRP4	4038
ATP2B1	490	OPRD1	4985	SLC5A2	6524
VHL	7428	CX3CL1	6376	MIF	4282
PRSS1	5644	NR5A2	2494	MAP2K1	5604
CBR1	873	RACK1	10399	RUFY1	80230
CTSC	1075	DYNLRB1	83658	CIDEA	1149
COL9A1	1297	ABAT	18	PDIA2	64714
TNFRSF1B	7133	APLP2	334	CHAT	1103
CASP7	840	SLC9A1	6548	EXOG	9941
ZEB1	6935	ACAA1	30	LIG4	3981
SGCB	6443	ETS1	2113	DIS3	22894
ACTG1	71	APCS	325	ARHGEF2	9181
DSTN	11034	PSMB5	5693	GDF1	2657
WNT6	7475	SORD	6652	SLC39A13	91252
LPIN2	9663	SDF4	51150	TNFRSF17	608
POLRMT	5442	FAH	2184	UBE4B	10277
NRF1	4899	MYH7	4625	UST	10090
RASGRP3	25780	CDK5R1	8851	MBD2	8932
BMPR2	659	DBN1	1627	LRP6	4040
RBP4	5950	SLC2A4	6517	MRPS6	64968
S100A4	6275	ACTC1	70	PPP2R1B	5519
IGF2	3481	DDC	1644	XIRP1	165904
CUL5	8065	NOS3	4846	LACTB	114294
ADAMTS1	9510	NPR2	4882	DGUOK	1716
PPM1B	5495	PTPRA	5786	ATG7	10533
GUCY1A2	2977	CEBPA	1050	MED13	9969
ADGRL1	22859	USF1	7391	HDAC2	3066
SP1	6667	CHRM2	1129	MUC17	140453
CACNG8	59283	NR1H4	9971	TNFRSF9	3604
SURF1	6834	PPAT	5471	LRRTM3	347731
HCN2	610	OPRM1	4988	DPH7	92715
UCP1	7350	ACVR2B	93	DSCAML1	57453

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
KAT6A	7994	SLN	6588	FKRP	79147
DDX31	64794	REEP1	65055	SIRT7	51547
PRTN3	5657	HAVCR2	84868	MED13L	23389
PFAS	5198	PLEKHA3	65977	KAT2B	8850
FAM135A	57579	AMOTL1	154810	SLC7A4	6545
ABCF2	10061	SNAPC5	10302	TAF10	6881
EZH2	2146	POSTN	10631	NDUFB5	4711
CARD10	29775	EIF4G2	1982	PTPRB	5787
IL21R	50615	IRAK4	51135	BAZ1B	9031
RHOC	389	MAP4K4	9448	KRIT1	889
SYNE2	23224	MDM2	4193	ENTR1	10807
MOSPD3	64598	GSC2	2928	NCF4	4689
PARD6G	84552	DNAH9	1770	MYBPC3	4607
HEYL	26508	HIC2	23119	TDRD6	221400
NET1	10276	ARHGAP9	64333	ATAD3A	55210
SMAD6	4091	EMILIN2	84034	CD68	968
RHBDF1	64285	COL4A4	1286	CERS1	10715
DSE	29940	CLCN6	1185	MBD1	4152
LTF	4057	ARHGDI ^B	397	PROCR	10544
MAP4K1	11184	IDH2	3418	NODAL	4838
PRPF8	10594	UCHL5	51377	CSRNP1	64651
MKI67	4288	BEST3	144453	SCARF2	91179
PMS2	5395	EIF4G1	1981	ZFPM2	23414
ACSS2	55902	ZNF366	167465	NAGA	4668
RNF2	6045	STK32B	55351	YAP1	10413
COTL1	23406	CDK15	65061	FHOD3	80206
DNPEP	23549	ARFGAP2	84364	SMOX	54498
MAML2	84441	PARL	55486	ADAMTS10	81794
WDR36	134430	BAZ1A	11177	TLL1	7092
ANAPC2	29882	IGFBP7	3490	LSP1	4046
SATB1	6304	TAF1C	9013	SMARCAL1	50485
UPP1	7378	FBXW5	54461	SOCS4	122809
PAX2	5076	UNC45B	146862	KLHDC2	23588
MCM2	4171	VSX1	30813	ZNF408	79797
ITGB2	3689	LRCH1	23143	PKP2	5318
GBA2	57704	ADTRP	84830	MYEF2	50804
RSPH14	27156	TBX5	6910	DOCK1	1793
SMARCE1	6605	ARMH3	79591	SLC2A10	81031
TBK1	29110	LRP8	7804	HDHD5	27440
CTDSP1	58190	TIA1	7072	IL17RA	23765
STN1	79991	STAT4	6775	REM1	28954
CTNND1	1500	TYMP	1890	TTLL4	9654
TCTN3	26123	XPC	7508	CA12	771
GTF3C5	9328	ELMO2	63916	MAP2K3	5606
SPTA1	6708	SCMH1	22955	MYRF	745
JPH2	57158	WDR1	9948	SGCD	6444
MEIS2	4212	DSP	1832	MMP27	64066
BAG1	573	ATR	545	DOT1L	84444
SIRT6	51548	POMP	51371	ARVCF	421
SLC66A2	80148	ABCG4	64137	FIS1	51024

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
NOXA1	10811	STIM1	6786	ARIH1	25820
FZD7	8324	SLC22A13	9390	SHOC2	8036
REXO4	57109	RETREG2	79137	NDUFB8	4714
VCPKMT	79609	IL18RAP	8807	BBS4	585
SETBP1	26040	TRAF6	7189	NMNAT3	349565
VAV2	7410	CD34	947	CCNL2	81669
RAPSN	5913	PROX1	5629	ANKS1A	23294
TJP1	7082	NEK8	284086	GP1BA	2811
WNT8A	7478	SUMO1	7341	MRPL41	64975
RPL3L	6123	AEBP1	165	SSNA1	8636
TFAP2B	7021	SLC30A5	64924	TFAP2A	7020
TADA3	10474	ODAD2	55130	SENP1	29843
SP140	11262	NISCH	11188	LIPT1	51601
DGCR8	54487	CFAP298	56683	C2CD2L	9854
HERC1	8925	PPP2R3A	5523	EHF	26298
NOD2	64127	AKIP1	56672	NCOR2	9612
AGL	178	USP37	57695	GYPC	2995
KDM4A	9682	PTOV1	53635	PIN1	5300
BCL3	602	CFL2	1073	FOXP4	116113
CAB39	51719	BCL2L13	23786	PPP6R1	22870
IL17RC	84818	ERCC1	2067	FANCL	55120
MDN1	23195	RAD18	56852	LRBA	987
EPN3	55040	THSD1	55901	CNNM2	54805
CCT7	10574	PLEKHM2	23207	CYP2C9	1559
CA9	768	WNT10A	80326	TCF7L2	6934
MAP3K5	4217	NEURL1	9148	KIFBP	26128
MST1R	4486	LTBP4	8425	MAML3	55534
PIK3CG	5294	MAP2K4	6416	PITPNM3	83394
SLC22A14	9389	VIL1	7429	KLHDC1	122773
RNF146	81847	SNTA1	6640	CHST12	55501
ABCA3	21	NTNG2	84628	ESS2	8220
DPT	1805	OLIG2	10215	ERO1A	30001
NFKB2	4791	EYA4	2070	ZFHX3	463
MIB1	57534	NDUFS2	4720	FOXO3	2309
MPZL2	10205	ANTXR1	84168	PHC1	1911
EPHA2	1969	COL4A1	1282	CD3E	916
RNF44	22838	COLEC10	10584	AGPAT2	10555
ANKIB1	54467	ZNF469	84627	CALR3	125972
RALY	22913	SP110	3431	DNAAF2	55172
LMOD1	25802	DUSP29	338599	ISG15	9636
ARHGAP22	58504	MFF	56947	NIF3L1	60491
SERPINF2	5345	SALL3	27164	ITGA3	3675
PLTP	5360	RSPH3	83861	LRMDA	83938
TMEM237	65062	MCM10	55388	EIF2AK4	440275
ADAMTS7	11173	LTA4H	4048	ARHGAP10	79658
GLMN	11146	PHPT1	29085	RRAS	6237
LRIG1	26018	AASDHPPPT	60496	CLK1	1195
DNA2	1763	PTPN3	5774	CDKN1C	1028
FERMT1	55612	ACTN2	88	CNOT9	9125
CARF	79800	GNA14	9630	CACFD1	11094

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
RAG1	5896	SRF	6722	RCBTB1	55213
SLC39A8	64116	ADAMTS2	9509	NDOR1	27158
RORC	6097	ARID1A	8289	WRN	7486
MYL7	58498	CLIC3	9022	PRDM5	11107
NSUN5	55695	MANF	7873	MOCOS	55034
NACC2	138151	ZEB2	9839	TOP3B	8940
PEX10	5192	SACS	26278	SESN3	143686
MRPL20	55052	BRD4	23476	GLB1L	79411
SLC39A12	221074	EBAG9	9166	PPIL2	23759
MDM4	4194	RYR1	6261	SOX4	6659
IRX4	50805	NDRG1	10397	EFNB2	1948
SLC2A6	11182	SAMHD1	25939	NECTIN2	5819
ALS2	57679	SIRT3	23410	GOPC	57120
RANGAP1	5905	RAPH1	65059	KCNG2	26251
CD163	9332	MTTP	4547	TAB2	23118
ANKRD23	200539	TM6SF2	53345	ITGAV	3685
HNRNPA2B1	3181	ADGRV1	84059	MKRN2	23609
SIRT4	23409	HOXD13	3239	STOX1	219736
CPEB1	64506	TBX20	57057	APOH	350
YES1	7525	NDUFS3	4722	TNFRSF11A	8792
ERCC6	2074	CRELD1	78987	UAP1L1	91373
KAT8	84148	NUP205	23165	ATG16L1	55054
EIF3E	3646	KDM2A	22992	MOV10	4343
XPO5	57510	NCF2	4688	XYLB	9942
TBCA	6902	DSC2	1824	SURF6	6838
AMFR	267	MAP3K7	6885	MBD3	53615
H2AC17	8336	ABCA4	24	SERPINC1	462
RNF25	64320	STK38	11329	RBM20	282996
TRIP11	9321	SARS2	54938	ARID4A	5926
UCK1	83549	DDX58	23586	MYPN	84665
NEBL	10529	TREM1	54210	EFEMP1	2202
BAIAP3	8938	RANBP1	5902	CRKL	1399
C8A	731	RHOJ	57381	SIRT1	23411
ADAMTS19	171019	CRBN	51185	CRYGN	155051
UBE2L3	7332	RBPJ	3516	KCNG4	93107
SSR2	6746	SLC24A5	283652	CCR6	1235
LRP5	4041	DGCR2	9993	B3GALT6	126792
MMP21	118856	MYOT	9499	VANGL1	81839
FIP1L1	81608	PRKACB	5567	AOPEP	84909
MAPK11	5600	DKK1	22943	EMILIN3	90187
SEMA3C	10512	STK36	27148	KCTD3	51133
HIPK2	28996	ADAMTS12	81792	FLT3	2322
ANKS6	203286	CFAP97	57587	BNC2	54796
COL8A1	1295	PACsin3	29763	KDM1B	221656
F11	2160	NMNAT2	23057	SPAG1	6674
COG5	10466	NHLRC2	374354	C/C	23152
DICER1	23405	STKLD1	169436	ACAP3	116983
DGCR6	8214	CDH5	1003	BICC1	80114
IRF5	3663	RAB25	57111	ARID1B	57492
TRAF2	7186	SGO2	151246	BRPF1	7862

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
RAD51	5888	RRAS2	22800	LIG3	3980
MAD2L2	10459	PLXND1	23129	SORL1	6653
NDUFC2	4718	DOLK	22845	MEF2A	4205
SHMT2	6472	EIF4EBP2	1979	SOS1	6654
IL18R1	8809	DUSP10	11221	EPRS1	2058
NPC1	4864	CAMSAP1	157922	CLASP1	23332
MAML1	9794	EHMT1	79813	THBS2	7058
ANK1	286	RABL6	55684	CYB561	1534
GYS1	2997	FCGR2A	2212	IRF2BPL	64207
ZNF142	7701	RAPGEF6	51735	GMDS	2762
DNAL1	83544	SYTL2	54843	RECQL4	9401
ZNF236	7776	ABCB8	11194	TBX1	6899
P4HA2	8974	MMP20	9313	PAPPA	5069
COLEC11	78989	SPRED1	161742	NSD1	64324
DUSP16	80824	LOXL1	4016	SPHK2	56848
PLA2G7	7941	IRF9	10379	NEMF	9147
NDUFB3	4709	IL7R	3575	ELK3	2004
LIPG	9388	EED	8726	RFX3	5991
NFATC4	4776	CRTC1	23373	BAG3	9531
AGAP3	116988	HDAC1	3065	IRAK3	11213
NLK	51701	RNLS	55328	USP3	9960
ENDOG	2021	CTNNA3	29119	TRNT1	51095
DSC1	1823	DMPK	1760	BLK	640
TGFBRAP1	9392	MLLT10	8028	GPATCH2	55105
LRP1	4035	DIABLO	56616	ZDHHC8	29801
QSOX2	169714	PTGIR	5739	LAMA2	3908
FOXE3	2301	KBTBD3	143879	HTRA2	27429
PSTPIP1	9051	TARDBP	23435	DIXDC1	85458
RCC1L	81554	MYLK	4638	FCGR1A	2209
MED15	51586	XPO7	23039	TRPC4AP	26133
HDAC4	9759	MYOZ2	51778	SALL1	6299
RAC2	5880	SLMAP	7871	TNNC1	7134
RPL7A	6130	FAM117B	150864	BCL11A	53335
NACA	4666	CTSG	1511	DSG1	1828
STK11	6794	CAVIN1	284119	LY86	9450
LAMC1	3915	RYR2	6262	ALG2	85365
PROZ	8858	NFATC2	4773	CRB1	23418
LINGO1	84894	DZIP1	22873	PAOX	196743
FOXP1	27086	EYA1	2138	PON2	5445
FKBP8	23770	RSPH1	89765	ARRDC1	92714
MTRR	4552	CD3G	917	CBFB	865
HSD3B2	3284	ADAMTS17	170691	PIWIL4	143689
NFATC3	4775	FLNC	2318	GNB1L	54584
PRKAG3	53632	BTG4	54766	ME3	10873
COL6A3	1293	MKKS	8195	ANK2	287
POLR1C	9533	USP34	9736	GATB	5188
CBLN2	147381	DNAJB2	3300	PREX2	80243
CD209	30835	IRX5	10265	TAX1BP3	30851
DVL2	1856	CHMP4B	128866	BRD3	8019
FOXR1	283150	RARRES2	5919	FKBP6	8468

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
MMP15	4324	BCR	613	RIT1	6016
MCOLN1	57192	MYH7B	57644	RANBP10	57610
LMCD1	29995	DPF3	8110	COLGALT1	79709
LMAN2	10960	PRMT5	10419	UBR7	55148
PRG4	10216	CYLD	1540	IL22	50616
GSTA4	2941	TBX4	9496	MT-ND4	4538
HNRNPC	3183	STAT6	6778	CYP2E1	1571
NAV2	89797	C8G	733	KCNE5	23630
SUPT16H	11198	SLC35E2A	9906	DUSP5	1847
TSPAN12	23554	H2AC16	8332	TNXB	7148
TTC39A	22996	COL22A1	169044	F7	2155
PRKG1	5592	LRRC32	2615	GGTL2	91227
DSG2	1829	CBFA2T2	9139	EPHA4	2043
ADIPOR2	79602	C1R	715	CCR3	1232
TAPBPL	55080	BCL9L	283149	NECAB2	54550
MMP1	4312	LZTR1	8216	ZBTB46	140685
MFAP5	8076	CEP68	23177	PTPRH	5794
C7	730	ERCC2	2068	SFRP2	6423
CLDN4	1364	MRPS2	51116	TNFAIP6	7130
JRKI	8690	TNFRSF14	8764	MIR208A	406990
DDX10	1662	NECAB3	63941	UPF3B	65109
S100A5	6276	SNX25	83891	JCAD	57608
NTS	4922	LAMA4	3910	MIR92A1	407048
SOX6	55553	DDB2	1643	DCN	1634
MEX3C	51320	CDK13	8621	TSFM	10102
DIP2A	23181	TRMU	55687	SERPINA5	5104
PTCH1	5727	ZNF174	7727	ALPL	249
SNAPC4	6621	MYL9	10398	PIGM	93183
ADAMTS16	170690	TTL3	26140	GNB3	2784
NDFIP1	80762	TRAPPC10	7109	S1PR1	1901
CERS2	29956	FOXH1	8928	BID	637
SDF2L1	23753	RAB39A	54734	ITLN1	55600
CWF19L2	143884	SPAG9	9043	PTK2B	2185
FKTN	2218	VPS11	55823	MYOM1	8736
ARPC4	10093	TP53BP1	7158	CFHR1	3078
CCNT1	904	TNFRSF10A	8797	FCGR2B	2213
IL33	90865	IRF4	3662	MXRA8	54587
BRF1	2972	WNT3A	89780	MT-TA	4553
ALOX12	239	THAP7	80764	NFATC1	4772
SH3PXD2A	9644	SGCA	6442	FAS	355
ITGA9	3680	CCM2	83605	KIF11	3832
LYPLAL1	127018	ZNF346	23567	KCTD18	130535
SURF4	6836	EDF1	8721	SOS2	6655
EMILIN1	11117	COL4A2	1284	FOLR1	2348
IL36RN	26525	MIR200B	406984	HIRA	7290
VCL	7414	PRODH	5625	SLC6A18	348932
EMC8	10328	MT-ND3	4537	FTL	2512
ELANE	1991	CORIN	10699	SCNN1D	6339
SELPLG	6404	CXCL1	2919	GSN	2934
PTPN22	26191	MRPL40	64976	MPO	4353

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
ADAMTS4	9507	DNAI1	27019	MLXIP	51085
DDAH2	23564	MIR186	406962	QRSL1	55278
KDM1A	23028	MIR204	406987	TNFSF9	8744
PLCD4	84812	SHC1	6464	FLACC1	130540
PALD1	27143	PIK3R5	23533	KIF21B	23046
GPR149	344758	MT-ND4L	4539	ALMS1	7840
PRKAG2	51422	ULK4	54986	ADAMTS13	11093
H2AX	3014	SIK2	23235	SIN3A	25942
RAB7B	338382	BAMBI	25805	FURIN	5045
ICA1L	130026	KCNE3	10008	STAT2	6773
CECR3	27442	ATAD3B	83858	ABHD11-AS1	171022
SF1	7536	MT-TP	4571	TF	7018
GIMAP2	26157	EPG5	57724	ELAC2	60528
ACTL10	170487	MIR26A1	407015	UQCRC1	7384
CEP85L	387119	PAEP	5047	GNA11	2767
CDK9	1025	MIR134	406924	FUT4	2526
NME2	4831	HNRNPH1	3187	SLC9A3R1	9368
MT-TF	4558	PPP1R1B	84152	SCN11A	11280
KIF6	221458	SNAI1	6615	FHL1	2273
UBAC1	10422	IER3	8870	WNK1	65125
BCORL1	63035	KMT2C	58508	HAS1	3036
PLCH2	9651	IKBKG	8517	S1PR2	9294
ZBTB18	10472	AKR1C4	1109	PDYN	5173
CYP27A1	1593	FDX1	2230	VAV3	10451
PRSS23	11098	IL13RA1	3597	RASSF1	11186
CD46	4179	CSNK2B	1460	UBE2J2	118424
C1QB	713	MSR1	4481	MIR133A2	406923
TSPAN17	26262	ATXN2	6311	PDCD1	5133
MIR361	494323	NPY1R	4886	TLNRD1	59274
RAB12	201475	BCS1L	617	F13B	2165
SUFU	51684	ACE2	59272	FKBP14	55033
TLR9	54106	RPL17	6139	SOX18	54345
HLA-DMA	3108	TXNL4A	10907	ZNF532	55205
CACYBP	27101	PRSS57	400668	KLF4	9314
GALNT11	63917	ZNF280A	129025	MIR223	407008
PIP5KL1	138429	CHD8	57680	PIGL	9487
MIR381	494330	STK16	8576	SRSF6	6431
PRICKLE1	144165	SLC22A2	6582	FXYD2	486
ZNF341	84905	SERPINF1	5176	PPARGC1A	10891
IDO1	3620	TEK	7010	MIR125B2	406912
CALML6	163688	MIR28	407020	CELSR3	1951
DAAM1	23002	SELL	6402	RAB5A	5868
RN7SL2	378706	PCDHA13	56136	PPID	5481
PNKD	25953	IFT74	80173	UTS2R	2837
PMPCA	23203	RBMS3	27303	INPP5E	56623
GAS5	60674	DGCR6L	85359	GDF15	9518
PAK1	5058	CIRBP	1153	PON3	5446
SIDT1	54847	CDC42SE2	56990	UNC5A	90249
CCNO	10309	EIF2S2	8894	FADS1	3992
MT-TG	4563	DNAAF4	161582	CFAP53	220136

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
MIR130B	406920	FCAR	2204	RNF113A	7737
MRGPRD	116512	MTMR2	8898	HDAC8	55869
SERPING1	710	SMARCD3	6604	SOX15	6665
BUD23	114049	IQGAP1	8826	COX15	1355
OBP2A	29991	TRPM2	7226	MC1R	4157
GFI1B	8328	RBFA	79863	AKT1S1	84335
WWP1	11059	CHD7	55636	SURF2	6835
POU2AF1	5450	CPEB4	80315	C2CD6	151254
CTDP1	9150	SKI	6497	MYOF	26509
DDX41	51428	F10	2159	CASP4	837
MS4A6A	64231	ACSL1	2180	SERPINA3	12
TPCN2	219931	ABL1	25	NDP	4693
MIR183	406959	SLC6A8	6535	DTNA	1837
ALG9	79796	NCL	4691	LCN8	138307
ESRRB	2103	MT-CO1	4512	LINC02907	157927
KLRC4	8302	DAG1	1605	VEGFB	7423
JAGN1	84522	TSPAN2	10100	NSUN6	221078
PROS1	5627	MYOCD	93649	MYCN	4613
EPN1	29924	RERE	473	IL1RN	3557
NPHP3	27031	MIPEP	4285	ADIPOR1	51094
MBD5	55777	RAB24	53917	TFPI	7035
USP19	10869	PLA2G15	23659	TNFRSF13B	23495
ARL2BP	23568	LUM	4060	RPS27L	51065
GLA	2717	ALG10B	144245	CEP170B	283638
TMED9	54732	ANGPTL4	51129	PSME4	23198
AIMP1	9255	BAP1	8314	PARP1	142
NR1I3	9970	NPAT	4863	MYD88	4615
OPA1	4976	MUS81	80198	PML	5371
MMP23B	8510	HLX	3142	TNFSF4	7292
TUBA4A	7277	POLE2	5427	MIR375	494324
CCL26	10344	B3GAT3	26229	CXCL8	3576
LCN1	3933	SLC27A6	28965	FANCD2	2177
FERMT2	10979	RGMA	56963	HSPB6	126393
HSPA9	3313	ERF	2077	KIF7	374654
DOK3	79930	MYH4	4622	MMP13	4322
ORC2	4999	TREX1	11277	EPDR1	54749
NRIP1	8204	TOMM70	9868	SMAD3	4088
SLC23A1	9963	PLG	5340	ATXN1	6310
PPP1R15A	23645	MIR27B	407019	APH1B	83464
MIR142	406934	NONO	4841	F5	2153
RIPK3	11035	ITCH	83737	SLC35F2	54733
LAT2	7462	HRC	3270	PRKACA	5566
ALDH6A1	4329	FNDC3B	64778	TRPV3	162514
TNF	7124	NAIP	4671	ICOS	29851
NEDD4L	23327	CAV2	858	GSTA5	221357
CAV3	859	TOMM40	10452	ABCC1	4363
BVES	11149	COL5A1-AS1	414316	FGF21	26291
PARK7	11315	MT-TR	4573	KLF13	51621
GLI1	2735	SPI1	6688	NOD1	10392
NEFL	4747	MT-TS2	4575	ARCN1	372

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
<i>NPC1L1</i>	29881	<i>EIF2AK2</i>	5610	<i>SGO1</i>	151648
<i>CBL</i>	867	<i>NUTF2</i>	10204	<i>EDN3</i>	1908
<i>FADD</i>	8772	<i>MMP3</i>	4314	<i>SMAD7</i>	4092
<i>ELOVL6</i>	79071	<i>PKD1L2</i>	114780	<i>RAB1B</i>	81876
<i>TNNI3K</i>	51086	<i>CRYBA2</i>	1412	<i>KCNK3</i>	3777
<i>PRR7</i>	80758	<i>MIR34A</i>	407040	<i>GRPEL1</i>	80273
<i>RLN3</i>	117579	<i>ZNF516</i>	9658	<i>GRK1</i>	6011
<i>GRN</i>	2896	<i>MAP2K2</i>	5605	<i>BMERB1</i>	89927
<i>CYP51A1</i>	1595	<i>PCDHA9</i>	9752	<i>TIAL1</i>	7073
<i>CXCR5</i>	643	<i>CNPPD1</i>	27013	<i>H1-4</i>	3008
<i>SAPCD2</i>	89958	<i>SLC30A4</i>	7782	<i>CETP</i>	1071
<i>ADGRE2</i>	30817	<i>UBQLN4</i>	56893	<i>EPCAM</i>	4072
<i>SDHD</i>	6392	<i>TNFSF10</i>	8743	<i>TYR</i>	7299
<i>TRIM63</i>	84676	<i>TAS1R3</i>	83756	<i>ATP6AP2</i>	10159
<i>MIR27A</i>	407018	<i>ATP5F1B</i>	506	<i>CTRL</i>	1506
<i>MICA</i>	100507436	<i>TLR6</i>	10333	<i>EEF2</i>	1938
<i>LCN9</i>	392399	<i>F12</i>	2161	<i>PTPN1</i>	5770
<i>GCH1</i>	2643	<i>LTA</i>	4049	<i>AKAP1</i>	8165
<i>AREG</i>	374	<i>H3C1</i>	8350	<i>PSORS1C1</i>	170679
<i>MIR215</i>	406997	<i>TUBB1</i>	81027	<i>LPA</i>	4018
<i>IL10RB</i>	3588	<i>XXYLT1</i>	152002	<i>GIMAP7</i>	168537
<i>SLC23A3</i>	151295	<i>GP1BB</i>	2812	<i>TBR1</i>	10716
<i>MT-TN</i>	4570	<i>PUS3</i>	83480	<i>SMARCA2</i>	6595
<i>SLC25A1</i>	6576	<i>SERPINA11</i>	256394	<i>F11R</i>	50848
<i>DDAH1</i>	23576	<i>MIR137</i>	406928	<i>DNAJC30</i>	84277
<i>SUN1</i>	23353	<i>KLF5</i>	688	<i>ACTA2</i>	59
<i>MBL1P</i>	8512	<i>ROBO4</i>	54538	<i>ANKRD1</i>	27063
<i>DNAH1</i>	25981	<i>THBS1</i>	7057	<i>FXYD3</i>	5349
<i>MIR146A</i>	406938	<i>TBX3</i>	6926	<i>DNAH5</i>	1767
<i>SCO1</i>	6341	<i>DAXX</i>	1616	<i>CSF2RB</i>	1439
<i>PDLIM5</i>	10611	<i>SNCG</i>	6623	<i>MIR152</i>	406943
<i>ASXL3</i>	80816	<i>ADAMTSL2</i>	9719	<i>PECAM1</i>	5175
<i>JAML</i>	120425	<i>PTX3</i>	5806	<i>CCR1</i>	1230
<i>PNKP</i>	11284	<i>RN7SL3</i>	378707	<i>ITGA2B</i>	3674
<i>GK</i>	2710	<i>LEMD3</i>	23592	<i>ELK1</i>	2002
<i>ALPK3</i>	57538	<i>F8</i>	2157	<i>SLC8B1</i>	80024
<i>GIMAP8</i>	155038	<i>TNFRSF12A</i>	51330	<i>AXIN2</i>	8313
<i>CTDSPL</i>	10217	<i>TXNIP</i>	10628	<i>TAF1</i>	6872
<i>C11orf1</i>	64776	<i>IL27</i>	246778	<i>LCN12</i>	286256
<i>HFE</i>	3077	<i>TLR3</i>	7098	<i>AK8</i>	158067
<i>AKAP5</i>	9495	<i>MT-TE</i>	4556	<i>ANGPTL7</i>	10218
<i>RSAD2</i>	91543	<i>ITGAM</i>	3684	<i>KRAS</i>	3845
<i>SRGAP3</i>	9901	<i>RPSA</i>	3921	<i>CTF1</i>	1489
<i>MEST</i>	4232	<i>MRE11</i>	4361	<i>FCN2</i>	2220
<i>CXCL6</i>	6372	<i>MT-CYB</i>	4519	<i>BNIP3</i>	664
<i>ALG10</i>	84920	<i>HOXA3</i>	3200	<i>MT-TQ</i>	4572
<i>ITPKC</i>	80271	<i>MT-TI</i>	4565	<i>TAFAZZIN</i>	6901
<i>ITGB3</i>	3690	<i>MT-ATP8</i>	4509	<i>APLN</i>	8862
<i>TBC1D32</i>	221322	<i>MT-TL2</i>	4568	<i>KLHL41</i>	10324
<i>GPD1L</i>	23171	<i>LCK</i>	3932	<i>APOC2</i>	344

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
POLR2A	5430	TUBA8	51807	CD14	929
CXCL10	3627	LHX3	8022	GPC4	2239
MIR34B	407041	PIK3CA	5290	PPP1R13L	10848
POMC	5443	MIR20A	406982	FRMD4B	23150
FOXF2	2295	TOP2A	7153	MMP9	4318
FBXO6	26270	PKD1L1	168507	XDH	7498
MKS1	54903	TTF1	7270	IRAK1	3654
CX3CR1	1524	RELA	5970	CXCL3	2921
KISS1	3814	METTL27	155368	EP300	2033
WFDC6	140870	TDGF1	6997	ERG	2078
MT2A	4502	HLA-B	3106	DVL1P1	8215
HEXA	3073	SCUBE2	57758	AGPAT1	10554
MIR346	442911	ZNF462	58499	NOSTRIN	115677
MIR10B	406903	SLX4IP	128710	MIRLET7I	406891
SI	6476	PPP1R26	9858	GRK5	2869
ITGAL	3683	PIGU	128869	FOXP3	50943
CHST3	9469	STC2	8614	WDR45	11152
KANK2	25959	COL6A1	1291	TGM6	343641
HYAL1	3373	SGCE	8910	RETN	56729
GBX1	2636	AKR1C3	8644	LATS1	9113
ATG9B	285973	COA6	388753	DDX6	1656
MACF1	23499	DDX3X	1654	AKAP9	10142
RAP1A	5906	PNPO	55163	IGLC1	3537
MYO6	4646	CD40LG	959	SLC20A1	6574
NGF	4803	CYP3A4	1576	EFEMP2	30008
CYSLTR2	57105	CENPF	1063	VCAN	1462
MIR188	406964	C6	729	GTF3C4	9329
CCDC22	28952	BCRP3	644165	CCL28	56477
USP10	9100	S100A9	6280	DUT	1854
BCL2L2	599	MIR206	406989	CTSS	1520
AGK	55750	KCNJ2	3759	UQCRCFS1	7386
ALOX15	246	ATP9B	374868	MIR1-2	406905
CCL7	6354	MSH3	4437	FHL2	2274
TP53INP2	58476	BAK1	578	CSF3	1440
BRK1	55845	ATP5F1D	513	RAD51C	5889
EGR2	1959	SYNGAP1	8831	PLEKHA7	144100
NGB	58157	GGT2	728441	SLPI	6590
MIR30A	407029	MIR125A	406910	MT-CO3	4514
TPRN	286262	ITM2B	9445	GJC1	10052
SMAD4	4089	GLT8D2	83468	SFRP4	6424
VASH1	22846	HSPA1L	3305	RALGDS	5900
ELMOD2	255520	ASB10	136371	CTSD	1509
HAVCR1	26762	BCL2L10	10017	SMAD2	4087
CDC45	8318	PRDM16	63976	FOXC2	2303
IL6	3569	ZIC3	7547	PGF	5228
ABCG2	9429	ATP6V1E1	529	HSP90AA1	3320
TRAK2	66008	BIRC2	329	VPREB1	7441
ATP5MG	10632	TIMP1	7076	ZC3HC1	51530
POLR2K	5440	MT-TS1	4574	TNFSF11	8600
C8B	732	CCR4	1233	CYP4F2	8529

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
<i>LCN10</i>	414332	<i>MIR376A1</i>	494325	<i>MIR148B</i>	442892
<i>FBXO11</i>	80204	<i>MIR34C</i>	407042	<i>NPPC</i>	4880
<i>CDK8</i>	1024	<i>NCF1</i>	653361	<i>SFTA3</i>	253970
<i>CHST14</i>	113189	<i>KLK1</i>	3816	<i>SALL4</i>	57167
<i>DNAH11</i>	8701	<i>KCNJ5</i>	3762	<i>PRKAR1B</i>	5575
<i>POMT1</i>	10585	<i>PRAME</i>	23532	<i>TCF3</i>	6929
<i>SARS1</i>	6301	<i>DPAGT1</i>	1798	<i>GLB1</i>	2720
<i>CGA</i>	1081	<i>MYO18B</i>	84700	<i>MMP10</i>	4319
<i>LRRC10</i>	376132	<i>MED27</i>	9442	<i>OBP2B</i>	29989
<i>GNB4</i>	59345	<i>MIR296</i>	407022	<i>TCN2</i>	6948
<i>GSTM3</i>	2947	<i>ELMOD1</i>	55531	<i>DNAI2</i>	64446
<i>WDR5</i>	11091	<i>NPHP4</i>	261734	<i>ACKR1</i>	2532
<i>TMEM121B</i>	27439	<i>ZBTB33</i>	10009	<i>REPIN1</i>	29803
<i>ACVR1B</i>	91	<i>MGA</i>	23269	<i>CAPZB</i>	832
<i>IFNGR1</i>	3459	<i>MED1</i>	5469	<i>FGL2</i>	10875
<i>PSORS1C2</i>	170680	<i>CTXN2</i>	399697	<i>PCDH12</i>	51294
<i>LCN6</i>	158062	<i>HADH</i>	3033	<i>RXFP4</i>	339403
<i>MT-TK</i>	4566	<i>SCO2</i>	9997	<i>PDZD3</i>	79849
<i>HLA-DRB1</i>	3123	<i>MAP1LC3A</i>	84557	<i>PXMP4</i>	11264
<i>FOXN1</i>	8456	<i>GTF2I</i>	2969	<i>RNF167</i>	26001
<i>ACSL6</i>	23305	<i>SSPN</i>	8082	<i>FARSB</i>	10056
<i>GIMAP5</i>	55340	<i>CFLAR</i>	8837	<i>GPSM1</i>	26086
<i>REG3G</i>	130120	<i>MAPK8IP3</i>	23162	<i>THUMPD3</i>	25917
<i>IL12A</i>	3592	<i>IFIH1</i>	64135	<i>SMARCA4</i>	6597
<i>PDCD10</i>	11235	<i>ADGRL4</i>	64123	<i>TMEM43</i>	79188
<i>UBE4A</i>	9354	<i>CDKN2B</i>	1030	<i>GLIS3</i>	169792
<i>SIAH1</i>	6477	<i>ITGA2</i>	3673	<i>ITGB1BP2</i>	26548
<i>SLC37A4</i>	2542	<i>MIR10A</i>	406902	<i>GIMAP1</i>	170575
<i>ENG</i>	2022	<i>WDR26</i>	80232	<i>PPP1R9A</i>	55607
<i>SULT1E1</i>	6783	<i>GYG1</i>	2992	<i>MIR181C</i>	406957
<i>HLA-DPB1</i>	3115	<i>CCNA2</i>	890	<i>MIR26B</i>	407017
<i>MAP2K7</i>	5609	<i>DNASE1L1</i>	1774	<i>SMAD9</i>	4093
<i>FCGR3B</i>	2215	<i>MT-ND6</i>	4541	<i>MED12</i>	9968
<i>SMPD3</i>	55512	<i>RSPH4A</i>	345895	<i>OXSR1</i>	9943
<i>TRPC6</i>	7225	<i>SERPINA4</i>	5267	<i>ENPP1</i>	5167
<i>SOCS1</i>	8651	<i>NDE1</i>	54820	<i>CUL4A</i>	8451
<i>STRA6</i>	64220	<i>SYNPO2L</i>	79933	<i>CCR5</i>	1234
<i>MT-ND5</i>	4540	<i>ASB4</i>	51666	<i>PDLIM3</i>	27295
<i>MAN1B1</i>	11253	<i>CCL23</i>	6368	<i>SCN8A</i>	6334
<i>GPR17</i>	2840	<i>SH3PXD2B</i>	285590	<i>MT-TT</i>	4576
<i>NDUFB11</i>	54539	<i>NDUFS1</i>	4719	<i>IRF8</i>	3394
<i>IL18BP</i>	10068	<i>MIR423</i>	494335	<i>F2RL3</i>	9002
<i>DCX</i>	1641	<i>MT-ATP6</i>	4508	<i>BIK</i>	638
<i>CYP3A5</i>	1577	<i>CECR2</i>	27443	<i>POGLUT3</i>	143888
<i>RDX</i>	5962	<i>GJB2</i>	2706	<i>FASN</i>	2194
<i>SLC34A3</i>	142680	<i>PRKD1</i>	5587	<i>KMT2A</i>	4297
<i>IFNL3</i>	282617	<i>RAPGEF3</i>	10411	<i>CASP10</i>	843
<i>MIR369</i>	442914	<i>TGOLN2</i>	10618	<i>TCAP</i>	8557
<i>UCN2</i>	90226	<i>FGD1</i>	2245	<i>VIP</i>	7432
<i>CFAP52</i>	146845	<i>TRAF1</i>	7185	<i>MC2R</i>	4158

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
<i>MT-TY</i>	4579	<i>ANGPTL5</i>	253935	<i>MIR19A</i>	406979
<i>CIITA</i>	4261	<i>COL4A5</i>	1287	<i>TRPM4</i>	54795
<i>MIR197</i>	406974	<i>FEV</i>	54738	<i>LTB4R</i>	1241
<i>ZFYVE16</i>	9765	<i>CLDN16</i>	10686	<i>B3GAT2</i>	135152
<i>POLE</i>	5426	<i>ADH5</i>	128	<i>ITGA4</i>	3676
<i>DNAH8</i>	1769	<i>SETX</i>	23064	<i>CLOCK</i>	9575
<i>BCL7B</i>	9275	<i>NEU3</i>	10825	<i>DSG4</i>	147409
<i>AGTRAP</i>	57085	<i>DES</i>	1674	<i>GSTA1</i>	2938
<i>MT-ND2</i>	4536	<i>BZW1</i>	9689	<i>WNK2</i>	65268
<i>TNFSF12</i>	8742	<i>HSD3B1</i>	3283	<i>NBEAL1</i>	65065
<i>TMEM25</i>	84866	<i>EIF4H</i>	7458	<i>UCN</i>	7349
<i>CLTCL1</i>	8218	<i>CD2AP</i>	23607	<i>MECP2</i>	4204
<i>SLC25A18</i>	83733	<i>CCL20</i>	6364	<i>MIR30B</i>	407030
<i>BMP8A</i>	353500	<i>PCK1</i>	5105	<i>PLN</i>	5350
<i>MAP1LC3B</i>	81631	<i>VWF</i>	7450	<i>GJB6</i>	10804
<i>P2RY8</i>	286530	<i>SLC12A9</i>	56996	<i>MIR21</i>	406991
<i>MYOZ1</i>	58529	<i>TWIST1</i>	7291	<i>PON1</i>	5444
<i>RANBP2</i>	5903	<i>MIR331</i>	442903	<i>CXCR3</i>	2833
<i>TGFB1</i>	7045	<i>MEF2C</i>	4208	<i>ST6GALNAC4</i>	27090
<i>HSPG2</i>	3339	<i>TMUB1</i>	83590	<i>UBR4</i>	23352
<i>FANCB</i>	2187	<i>MIR23B</i>	407011	<i>FBXL22</i>	283807
<i>GALNTL5</i>	168391	<i>MYB</i>	4602	<i>AP1B1</i>	162
<i>HDAC6</i>	10013	<i>XRCC2</i>	7516	<i>KLHL36</i>	79786
<i>HBA1</i>	3039	<i>VPS37D</i>	155382	<i>MIR196B</i>	442920
<i>ADIPOQ</i>	9370	<i>UGCG</i>	7357	<i>SCN1B</i>	6324
<i>ITGA5</i>	3678	<i>IL12RB1</i>	3594	<i>CYBB</i>	1536
<i>LDB3</i>	11155	<i>MT-RNR1</i>	4549	<i>NDUFA1</i>	4694
<i>LBP</i>	3929	<i>ARHGAP20</i>	57569	<i>MIR335</i>	442904
<i>AICDA</i>	57379	<i>IHH</i>	3549	<i>MT-TH</i>	4564
<i>CACNA1B</i>	774	<i>HAS3</i>	3038	<i>FGF5</i>	2250
<i>RHOA</i>	387	<i>MIR193A</i>	406968	<i>SRC</i>	6714
<i>VILL</i>	50853	<i>GLO1</i>	2739	<i>TCF21</i>	6943
<i>IL13RA2</i>	3598	<i>PPIL3</i>	53938	<i>RER1</i>	11079
<i>AOC3</i>	8639	<i>EFNA5</i>	1946	<i>THPO</i>	7066
<i>MT1F</i>	4494	<i>COL11A2</i>	1302	<i>RNF213</i>	57674
<i>TMEM250</i>	90120	<i>BPNT1</i>	10380	<i>CD70</i>	970
<i>MIR1-1HG</i>	128826	<i>PPP3R1</i>	5534	<i>SLC29A3</i>	55315
<i>DCHS1</i>	8642	<i>EIF1AX</i>	1964	<i>CYP4F12</i>	66002
<i>SCN10A</i>	6336	<i>FCN1</i>	2219	<i>YPEL1</i>	29799
<i>GULOP</i>	2989	<i>GBGT1</i>	26301	<i>BRAP</i>	8315
<i>MCFD2</i>	90411	<i>ZBTB20</i>	26137	<i>RFC2</i>	5982
<i>PEX26</i>	55670	<i>RPUSD3</i>	285367	<i>CASP12</i>	100506742
<i>PRDM6</i>	93166	<i>NAMPT</i>	10135	<i>LEFTY2</i>	7044
<i>PRF1</i>	5551	<i>SMIM11A</i>	54065	<i>MN1</i>	4330
<i>SCFD1</i>	23256	<i>IL23R</i>	149233	<i>MYH15</i>	22989
<i>MT-TC</i>	4511	<i>PARG</i>	8505	<i>ACAD9</i>	28976
<i>KLF9</i>	687	<i>CASP5</i>	838	<i>ATP5PO</i>	539
<i>MMP12</i>	4321	<i>RAB36</i>	9609	<i>ADM2</i>	79924
<i>HABP2</i>	3026	<i>SGCG</i>	6445	<i>SUV39H1</i>	6839
<i>DNAAF11</i>	23639	<i>HYDIN</i>	54768	<i>CHD3</i>	1107

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
BCAP31	10134	MYL4	4635	BMP6	654
EXOSC10	5394	ZDHHC7	55625	HKDC1	80201
KDM5C	8242	MMP8	4317	GOLGA6B	55889
ARL13B	200894	CCDC3	83643	CYP2J2	1573
SERPINA1	5265	KIAA0513	9764	FLNA	2316
ESRRG	2104	GIMAP4	55303	LRPAP1	4043
KLF6	1316	TNFSF8	944	PEPD	5184
THBD	7056	MIR126	406913	CYRIB	51571
CYP17A1	1586	DSG3	1830	PNPLA2	57104
CCDC183	84960	COX7A1	1346	TMEM260	54916
CFB	629	INPP5D	3635	CSF2	1437
CASP9	842	CHRD	8646	GDF2	2658
BNIP3L	665	ADH1B	125	XRCC4	7518
RAB1A	5861	CXCL5	6374	TAC3	6866
POU5F1	5460	TRAPPC4	51399	F2	2147
KMT2D	8085	FCN3	8547	UPK2	7379
MUC13	56667	NPY2R	4887	WNK4	65266
TDRD7	23424	MIR383	494332	NLRP13	126204
MIR330	442902	GSTT2	2953	CCL4	6351
ALPK1	80216	MIB2	142678	USP18	11274
RAB7A	7879	ANG	283	ZNF354A	6940
APOM	55937	S100A1	6271	SLC35F1	222553
HLA-DQA1	3117	MT1X	4501	ATG9A	79065
ZMYND10	51364	S100A8	6279	ZNF74	7625
SLC22A3	6581	MT-ND1	4535	ADGRL3	23284
MIR337	442905	HHIPL1	84439	BMP10	27302
CCL11	6356	ZCCHC14	23174	KCNQ1	3784
CREG1	8804	SLCO1B3	28234	CTTNBP2	83992
FNDC5	252995	RAB8B	51762	C9orf116	138162
MIR200A	406983	GRK6	2870	TRPM7	54822
CXCL9	4283	ATP5ME	521	ADA2	51816
C20orf144	128864	IFNA2	3440	PNPLA7	375775
MIR194-1	406969	YWHAE	7531	ATG5	9474
FOXF1	2294	C5AR1	728	ZMYND19	116225
ZNF280B	140883	STRADB	55437	IL17RD	54756
KCNQ1OT1	10984	MIR15A	406948	XIAP	331
HLA-DMB	3109	HEY2	23493	DKK3	27122
HLA-A	3105	ARHGDI	396	SMAD1	4086
SEPTIN9	10801	BMPR1B	658	PDLIM4	8572
CDK5R2	8941	CENPC	1060	CBX7	23492
IFT122	55764	RHEB	6009	ADORA3	140
HSPA1A	3303	MAPRE1	22919	RAI2	10742
MIR221	407006	ABI2	10152	EIF4EBP1	1978
MT-TM	4569	WDR12	55759	TERT	7015
RNF123	63891	NR2C2	7182	CCL1	6346
MT-TV	4577	AURKA	6790	KAT6B	23522
PHLDB2	90102	PHACTR1	221692	KDM4D	55693
GLT6D1	360203	MYOD1	4654	BTNL2	56244
TRADD	8717	GAA	2548	MX1	4599
SCN3B	55800	IL1RL2	8808	RELB	5971

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
<i>NDRG4</i>	65009	<i>MB</i>	4151	<i>STING1</i>	340061
<i>TNFRSF6B</i>	8771	<i>LIFR</i>	3977	<i>CCDC116</i>	164592
<i>PTPRU</i>	10076	<i>CYP4Z1</i>	199974	<i>ADAD2</i>	161931
<i>ADPGK</i>	83440	<i>ACAT2</i>	39	<i>C9orf163</i>	158055
<i>RPS25</i>	6230	<i>JARID2</i>	3720	<i>IL17RE</i>	132014
<i>FUT7</i>	2529	<i>CELSR1</i>	9620	<i>GUF1</i>	60558
<i>MT-TD</i>	4555	<i>NEXN</i>	91624	<i>TMEM176A</i>	55365
<i>TLR2</i>	7097	<i>GATA5</i>	140628	<i>FSIP2</i>	401024
<i>ASIC3</i>	9311	<i>SEC16A</i>	9919	<i>DNAAF3</i>	352909
<i>MIR145</i>	406937	<i>NOTCH4</i>	4855	<i>CENATAC</i>	338657
<i>EPHB4</i>	2050	<i>EDEM2</i>	55741	<i>TTLL10</i>	254173
<i>SERPINA10</i>	51156	<i>ST6GALNAC6</i>	30815	<i>CCDC89</i>	220388
<i>CD27</i>	939	<i>B4GALT7</i>	11285	<i>LINC01599</i>	196913
<i>MT-TL1</i>	4567	<i>MPZL3</i>	196264	<i>TMEM270</i>	135886
<i>CCL13</i>	6357	<i>THOC6</i>	79228	<i>ZFAND2B</i>	130617
<i>PLOD1</i>	5351	<i>EMC3</i>	55831	<i>MORN1</i>	79906
<i>NPDC1</i>	56654	<i>LRP2BP</i>	55805	<i>CELA2A</i>	63036
<i>HES5</i>	388585	<i>FAM193B</i>	54540	<i>CEP57</i>	9702
<i>PKD2</i>	5311	<i>ATL3</i>	25923	<i>SNORD70</i>	692110
<i>PUSL1</i>	126789	<i>SMCHD1</i>	23347	<i>DIPK1B</i>	138311
<i>AKAP14</i>	158798	<i>TUBB4B</i>	10383	<i>KIAA2013</i>	90231
<i>HLA-E</i>	3133	<i>LCNL1</i>	401562	<i>TMEM141</i>	85014
<i>FLT3LG</i>	2323	<i>C1orf185</i>	284546	<i>NHEJ1</i>	79840
<i>FOXC1</i>	2296	<i>EIF4E1B</i>	253314	<i>ANKZF1</i>	55139
<i>C3AR1</i>	719	<i>TMCO1</i>	54499	<i>PYCARD</i>	29108
<i>SPACA9</i>	11092	<i>NCAPH2</i>	29781	<i>SRSF8</i>	10929
<i>CFH</i>	3075	<i>AFF4</i>	27125	<i>SNORD11</i>	692058
<i>JAG1</i>	182	<i>KALRN</i>	8997	<i>ZNF526</i>	116115
<i>HLA-DQB1</i>	3119	<i>NTMT2</i>	149281	<i>MYSM1</i>	114803
<i>OGG1</i>	4968	<i>DCUN1D5</i>	84259	<i>TSR2</i>	90121
<i>HDAC9</i>	9734	<i>PNPLA3</i>	80339	<i>SNHG7</i>	84973
<i>ARG1</i>	383	<i>UIMC1</i>	51720	<i>CCDC82</i>	79780
<i>CFC1</i>	55997	<i>CCDC103</i>	388389	<i>EGFL7</i>	51162
<i>P2RY12</i>	64805	<i>CATIP</i>	375307	<i>RANGRF</i>	29098
<i>CIDEc</i>	63924	<i>DAW1</i>	164781	<i>PRDX6</i>	9588
<i>MT-TW</i>	4578	<i>IFT43</i>	112752	<i>KLHL22</i>	84861
<i>TRIB1</i>	10221	<i>ODAD1</i>	93233	<i>ATP1A1-AS1</i>	84852
<i>S100A6</i>	6277	<i>LYRM7</i>	90624	<i>MICAL3</i>	57553
<i>TBL2</i>	26608	<i>ZC3H12C</i>	85463	<i>DISP3</i>	57540
<i>HSDL1</i>	83693	<i>NUB1</i>	51667	<i>CFAP92</i>	57501
<i>ANKRD31</i>	256006	<i>GINS2</i>	51659	<i>INTS11</i>	54973
<i>EIF2AK3</i>	9451	<i>ENDOD1</i>	23052	<i>TMEM70</i>	54968
<i>SCN2A</i>	6326	<i>PARP2</i>	10038	<i>SSUH2</i>	51066
<i>PHLDB1</i>	23187	<i>HOATZ</i>	399949	<i>WDPCP</i>	51057
<i>KCNK2</i>	3776	<i>ENTPD8</i>	377841	<i>MIR598</i>	693183
<i>TNC</i>	3371	<i>MITD1</i>	129531	<i>MIR590</i>	693175
<i>PHF6</i>	84295	<i>ALKBH8</i>	91801	<i>MIR582</i>	693167
<i>DNMT1</i>	1786	<i>ZC3H12A</i>	80149	<i>MIR532</i>	693124
<i>SBF2</i>	81846	<i>MGAT4B</i>	11282	<i>MIR411</i>	693121
<i>ETFDH</i>	2110	<i>ACSL3</i>	2181	<i>TMEM86B</i>	255043

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
<i>TLCD5</i>	219902	<i>LRRC26</i>	389816	<i>CDKN2C</i>	1031
<i>C11orf65</i>	160140	<i>LCN15</i>	389812	<i>MT1HL1</i>	645745
<i>RHOXF1</i>	158800	<i>RNF207</i>	388591	<i>DDI1</i>	414301
<i>ODAD3</i>	115948	<i>C1QTNF12</i>	388581	<i>LHFPL4</i>	375323
<i>SRI</i>	6717	<i>CDKL4</i>	344387	<i>PFN3</i>	345456
<i>LMOD2</i>	442721	<i>CIBAR2</i>	339145	<i>LAYN</i>	143903
<i>TMEM52</i>	339456	<i>CYP4A22</i>	284541	<i>LRRC56</i>	115399
<i>TMEM240</i>	339453	<i>TICAM1</i>	148022	<i>TSLP</i>	85480
<i>LINC01588</i>	283551	<i>MTPN</i>	136319	<i>CFAP74</i>	85452
<i>SOX5</i>	6660	<i>DNAJC19</i>	131118	<i>WDR75</i>	84128
<i>CYSRT1</i>	375791	<i>PRXL2B</i>	127281	<i>CCDC92</i>	80212
<i>FAM83H</i>	286077	<i>ZPBP2</i>	124626	<i>SLC30A10</i>	55532
<i>REEP3</i>	221035	<i>HVCN1</i>	84329	<i>ERRFI1</i>	54206
<i>SRFBP1</i>	153443	<i>VWA1</i>	64856	<i>CYCS</i>	54205
<i>LINC00477</i>	144360	<i>VPS35L</i>	57020	<i>EXPH5</i>	23086
<i>NKX2-6</i>	137814	<i>CHPF2</i>	54480	<i>PQBP1</i>	10084
<i>FANCD2OS</i>	115795	<i>PRELID1</i>	27166	<i>HDAC5</i>	10014
<i>CPLANE2</i>	79363	<i>INVS</i>	27130	<i>TNFRSF18</i>	8784
<i>TMEM135</i>	65084	<i>PAMR1</i>	25891	<i>SNAP23</i>	8773
<i>TMEM106B</i>	54664	<i>NIPBL</i>	25836	<i>CDC25B</i>	994
<i>UBIAD1</i>	29914	<i>CCL5</i>	6352	<i>CDK11A</i>	728642
<i>CLEC10A</i>	10462	<i>CLEC11A</i>	6320	<i>CDK11B</i>	984
<i>MIR503</i>	574506	<i>REG3A</i>	5068	<i>CD40</i>	958
<i>MIR502</i>	574504	<i>CD82</i>	3732	<i>CD86</i>	942
<i>MIR499A</i>	574501	<i>LYST</i>	1130	<i>C11orf87</i>	399947
<i>SLC6A17</i>	388662	<i>CHKA</i>	1119	<i>MYLK4</i>	340156
<i>ZNF775</i>	285971	<i>COA5</i>	493753	<i>TECRL</i>	253017
<i>ABRA</i>	137735	<i>MIR17HG</i>	407975	<i>ATAD3C</i>	219293
<i>MSANTD4</i>	84437	<i>CFAP77</i>	389799	<i>NIBAN3</i>	199786
<i>MMEL1</i>	79258	<i>ANKRD37</i>	353322	<i>KHDC3L</i>	154288
<i>CASD1</i>	64921	<i>C1orf167</i>	284498	<i>B3GLCT</i>	145173
<i>CREBZF</i>	58487	<i>CCDC153</i>	283152	<i>C11orf52</i>	91894
<i>DENND11</i>	57189	<i>FAAP20</i>	199990	<i>CEP290</i>	80184
<i>RALGAPB</i>	57148	<i>CPNE9</i>	151835	<i>CTC1</i>	80169
<i>CAMK1D</i>	57118	<i>SGF29</i>	112869	<i>LRRC8E</i>	80131
<i>TMEM126B</i>	55863	<i>TMEM126A</i>	84233	<i>CWC15</i>	51503
<i>HINFP</i>	25988	<i>CD276</i>	80381	<i>HIKESHI</i>	51501
<i>NELFB</i>	25920	<i>PDGFD</i>	80310	<i>CEP152</i>	22995
<i>RPGRIP1L</i>	23322	<i>C11orf49</i>	79096	<i>ATXN2L</i>	11273
<i>KNG1</i>	3827	<i>VKORC1</i>	79001	<i>DLEC1</i>	9940
<i>CCR2</i>	729230	<i>MTARC1</i>	64757	<i>PLPP3</i>	8613
<i>RNF208</i>	727800	<i>IFT46</i>	56912	<i>CASP2</i>	835
<i>MIR493</i>	574450	<i>IARS2</i>	55699	<i>FAM163B</i>	642968
<i>MIR146B</i>	574447	<i>INTS8</i>	55656	<i>MIR433</i>	574034
<i>MIR376B</i>	574435	<i>PPA2</i>	27068	<i>MIR20B</i>	574032
<i>MIR452</i>	574412	<i>TRMT2A</i>	27037	<i>MIR362</i>	574030
<i>MIR451A</i>	574411	<i>RAB3GAP2</i>	25782	<i>NRARP</i>	441478
<i>GIMAP6</i>	474344	<i>GSE1</i>	23199	<i>STPG3</i>	441476
<i>FAM166A</i>	401565	<i>FAF2</i>	23197	<i>SLC27A1</i>	376497
<i>LINC02908</i>	401563	<i>FXN</i>	2395	<i>USP41</i>	373856

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
WDR86	349136	RFFL	117584	TMTC4	84899
SLC6A19	340024	TMEM123	114908	ORA11	84876
MAMDC4	158056	TMEM203	94107	AGBL4	84871
YDJC	150223	CFAP300	85016	RTL10	79680
AIFM3	150209	CRISPLD2	83716	FASTKD1	79675
SPATA17	128153	METTL8	79828	NLRX1	79671
PIH1D2	120379	AFAP1	60312	DYNC2H1	79659
CCDC32	90416	CARD18	59082	SRD5A3	79644
EIF2A	83939	GATAD1	57798	CEP126	57562
PKD1L1-AS1	80099	MEAK7	57707	AURKAIP1	54998
DCAF17	80067	PBRM1	55193	MTARC2	54996
SEMA6D	80031	DARS2	55157	C1orf159	54991
WWC2	80014	CD274	29126	EXD3	54932
MTMR14	64419	SSU72	29101	YARS2	51067
LGR4	55366	ACOT2	10965	RRP15	51018
MNS1	55329	FASTK	10922	TMEM176B	28959
UFSP2	55325	PNPLA6	10908	LAMTOR2	28956
KHDC4	22889	WSCD2	9671	MASP2	10747
ADNP2	22850	MARF1	9665	PTGES3	10728
WASHC5	9897	TFAM	7019	MED22	6837
NUAK1	9891	HMGGB1	3146	PDIA3	2923
KEAP1	9817	HBEGF	1839	FASLG	356
TTN	7273	DRD3	1814	APEX1	328
ERN1	2081	ACOT1	641371	C16orf74	404550
C1S	716	MIR429	554210	TEX9	374618
CCDC30	728621	SLC25A35	399512	PAXX	286257
CARD17	440068	C11orf53	341032	CCDC110	256309
SOHLH1	402381	FAM126B	285172	MPV17L	255027
MIA3	375056	IAH1	285148	TUBB	203068
PRRT3	285368	DRC1	92749	A2ML1	144568
SLC9B1	150159	C1orf115	79762	ACTRT2	140625
FAM76B	143684	PPCS	79717	TANGO2	128989
PIK3IP1	113791	TMBIM1	64114	C22orf39	128977
HIF3A	64344	CCDC40	55036	FNIP1	96459
CCDC81	60494	TMEM255A	55026	TUBA1C	84790
YY1AP1	55249	SRCAP	10847	ABHD11	83451
MACO1	55219	CREB5	9586	SAP130	79595
NKAPD1	55216	HINT1	3094	NKAP	79576
SETD5	55209	DNMT3B	1789	NADK	65220
UBR5	51366	DNMT3A	1788	CYP20A1	57404
SNRNP27	11017	ATM	472	CASZ1	54897
TMEM94	9772	MIR542	664617	BCOR	54880
TMOD1	7111	FIBIN	387758	TOR4A	54863
RAC1	5879	ARMS2	387715	ANKRD49	54851
MT-CO2	4513	CFAP65	255101	CDHR2	54825
HES1	3280	CCDC83	220047	BACE1	23621
CBY3	646019	DNAAF1	123872	TSSK2	23617
DRAXIN	374946	CEP20	123811	IGF2BP1	10642
CCDC39	339829	GPRIN1	114787	STAMBP	10617
RMDN2	151393	CARD16	114769	GRK4	2868

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
CYP19A1	1588	MIR301B	100126318	COL4A2-AS2	100129836
CYP2C8	1558	MIR744	100126313	LRRD1	401387
MIAT	440823	MIR671	768213	RNF224	643596
BRINP3	339479	MIR758	768212	MIR4428	100616141
HYLS1	219844	RIMBP3B	440804	MIR4761	100616414
C1orf127	148345	RIMBP3C	150221	MIR1245B	100616324
GCOM1	145781	RIMBP3	85376	MYLK-AS1	100506826
TMEM67	91147	GGTLC3	728226	FPGT-TNNI3K	100526835
WDR25	79446	TET3	200424	ANKRD65	441869
SMG9	56006	TMEM210	100505993	MYZAP	100820829
TET2	54790	LRRC53	105378803	KCNQ1-AS1	338653
ARHGAP45	23526	TTC36	143941	FNDC10	643988
MTREX	23517	TTC34	100287898	CACNA1C-IT3	100874370
TXNRD2	10587	C2orf74	339804	COL4A2-AS1	100874203
HYOU1	10525	C4orf47	441054	CACNA1C-AS4	100874234
PDLIM7	9260	MIR155	406947	CACNA1C-AS2	100874235
PRRX1	5396	ZNF862	643641	NDP-AS1	100873919
GLI2	2736	NPHP3-AS1	348808	OPA1-AS1	100873941
NKX2-5	1482	DBH-AS1	138948	FENDRR	400550
CS	1431	FDXACB1	91893	CACNA1C-AS1	100652846
AGMO	392636	CDKN2B-AS1	100048912	SRD5A3-AS1	100506462
AGRN	375790	RNU6ATAC	100151684	SBF2-AS1	283104
MYBPHL	343263	RNU4ATAC	100151683	TTN-AS1	100506866
GATC	283459	FBRSL1	57666	RTEL1-TNFRSF6E	100533107
HECTD4	283450	TMPPE	643853	SLC26A4-AS1	286002
FBXO44	93611	RESP18	389075	TMPO-AS1	100128191
RTN4R	65078	SDHAF1	644096	ACVR2B-AS1	100128640
OSGIN1	29948	KDM4E	390245	LOXL1-AS1	100287616
SPATS2L	26010	MIR1245A	100302219	TBX5-AS1	255480
NPTXR	23467	COLCA2	120376	PRKAG2-AS1	100505483
KCNAB1	7881	TMEM88B	643965	MCIDAS	345643
TUBA1A	7846	HSBP1L1	440498	CCL15-CCL14	348249
GBA	2629	NPPA-AS1	100379251	LINC00683	400660
NACAD	23148	MIR548L	100302275	IFNL4	101180976
MEX3A	92312	MIR1285-1	100302218	FAM230A	653203
LINC02869	440714	LIPT2	387787	RPL36A-HNRNPH:	100529097
ATRIP	84126	C5orf60	285679	TEX41	401014
SNORD11B	100113392	MYMK	389827	HAND2-AS1	79804
RHOXF2B	727940	AJM1	389813	EDNRB-AS1	100505518
RHOXF2	84528	IGLL5	100423062	LINC01082	100506542
TMEM191C	645426	MIR761	100313892	P2RX5-TAX1BP3	100533970
MOXD2P	100289017	ARHGAP42	143872	NPHP3-ACAD11	100532724
TMEM191B	728229	MIR620	693205	LINC01142	284688
CC2D2A	57545	MIR4251	100422968	APELA	100506013
CPTP	80772	MIR3129	100422908	ITGA9-AS1	101928153
DNLZ	728489	SLC35E2B	728661	MIR6076	102464828
TMEM202	338949	MIR3606	100500837	MIR6804	102465482
CFC1B	653275	ARPC4-TLLL3	100526693	MIR6870	102465525
SLC38A8	146167	PRSS56	646960	MIR6803	102466739
MIR208B	100126336	RNF223	401934	MIR6500	102466656

Supplementary Table S2 (continued)

Gene Symbol	Entrez ID	Gene Symbol	Entrez ID	Gene Symbol	Entrez ID
<i>MIR6802</i>	102465481	<i>FRA11B</i>	109280160	<i>LOC644285</i>	644285
<i>MIR6795</i>	102465476	<i>SEPTIN5</i>	5413	<i>LOC111811965</i>	111811965
<i>TARID</i>	100507308	<i>ALDOA</i>	226	<i>LOC110121264</i>	110121264
<i>LYPLAL1-DT</i>	643723	<i>WNT3</i>	7473	<i>LOC100287329</i>	100287329
<i>LINC01426</i>	100506385	<i>RUNX1</i>	861	<i>LOC114827827</i>	114827827
<i>ZNF341-AS1</i>	101929746	<i>HFE-AS1</i>	108783645	<i>LOC110121288</i>	110121288
<i>LINC01879</i>	400661	<i>SGO1-AS1</i>	100874028	<i>LOC113748410</i>	113748410
<i>CYP51A1-AS1</i>	613126	<i>SCN1A-AS1</i>	101929680	<i>LOC110121266</i>	110121266
<i>ACTA2-AS1</i>	100132116	<i>LOC112694687</i>	112694687	<i>LOC112872299</i>	112872299
<i>FSIP2-AS1</i>	107985781	<i>LOC110120888</i>	110120888	<i>LOC112997581</i>	112997581
<i>DSCAS</i>	101927698	<i>LOC110599580</i>	110599580	<i>LOC106029312</i>	106029312
<i>TGFB2-OT1</i>	103611157	<i>LOC107982234</i>	107982234	<i>LOC111413015</i>	111413015
<i>ZFPM2-AS1</i>	102723356	<i>LOC110121276</i>	110121276	<i>LOC111365225</i>	111365225
<i>PTOV1-AS2</i>	101928378	<i>LOC112340382</i>	112340382	<i>LOC114827850</i>	114827850
<i>TGFB2-AS1</i>	728463	<i>LOC107303340</i>	107303340	<i>LOC111875823</i>	111875823
<i>DSG2-AS1</i>	100652770	<i>DES-LCR</i>	106866982	<i>LOC114827851</i>	114827851
<i>LINC01389</i>	102724077	<i>LOC110121281</i>	110121281	<i>LOC110121232</i>	110121232
<i>SMAD1-AS1</i>	104326058	<i>LOC110121269</i>	110121269	<i>LOC106783508</i>	106783508
<i>APOA1-AS</i>	104326055	<i>LOC101928961</i>	101928961	<i>LOC110673971</i>	110673971
<i>TET2-AS1</i>	104384744	<i>LOC110121278</i>	110121278	<i>LOC110120689</i>	110120689
<i>MHRT</i>	104564225	<i>LOC112577579</i>	112577579	<i>LOC110121277</i>	110121277
<i>WASHC5-AS1</i>	106479020	<i>LOC110973015</i>	110973015	<i>LOC107988032</i>	107988032
<i>SNORA99</i>	106635531	<i>NRIP3-DT</i>	105376541	<i>PKD2L2-DT</i>	101928005
<i>LINC01710</i>	105372925	<i>LOC106501713</i>	106501713	<i>LOC112694764</i>	112694764
<i>LINC02206</i>	102723481	<i>LOC110121274</i>	110121274	<i>LOC102723493</i>	102723493
<i>SNORD70B</i>	109616995	<i>LOC101448202</i>	101448202	<i>LOC106780803</i>	106780803
<i>MIR3936HG</i>	553103	<i>LOC108903149</i>	108903149	<i>LOC108353820</i>	108353820
<i>FLNC-AS1</i>	110806300	<i>LOC110121265</i>	110121265	<i>LOC108903148</i>	108903148
<i>TRDN-AS1</i>	101927990	<i>LOC110120751</i>	110120751	<i>LOC112694688</i>	112694688
<i>TPM1-AS</i>	111064646	<i>LOC113939944</i>	113939944	<i>LOC112543469</i>	112543469
<i>ELN-AS1</i>	107986809	<i>LOC112694766</i>	112694766	<i>LOC113748416</i>	113748416
<i>CSRP3-AS1</i>	105376580	<i>LOC111365216</i>	111365216	<i>LOC110121223</i>	110121223
<i>CACNA2D1-AS1</i>	101927356	<i>LOC112806077</i>	112806077	<i>LOC112935930</i>	112935930
<i>LDLR-AS1</i>	115271120	<i>LOC111465007</i>	111465007	<i>LOC113939949</i>	113939949
<i>IL6-AS1</i>	541472	<i>LOC110121279</i>	110121279	<i>LOC120285841</i>	120285841
<i>MADD-AS1</i>	101928943	<i>LOC111413043</i>	111413043	<i>LOC120851201</i>	120851201
<i>LAMA4-AS1</i>	101927640	<i>LOC107303339</i>	107303339	<i>LOC120908908</i>	120908908
<i>RNF213-AS1</i>	100294362	<i>LOC110121486</i>	110121486	<i>LOC121056754</i>	121056754
<i>PPM1F-AS1</i>	100286925	<i>LOC112935929</i>	112935929	<i>LOC121175350</i>	121175350
<i>CFAP298-TCP10L</i>	110091775	<i>LOC110121287</i>	110121287	<i>LOC121366042</i>	121366042
<i>AL162586.1</i>	102723566	<i>LOC112577486</i>	112577486	<i>LOC121331339</i>	121331339
<i>AC009264.1</i>	349160	<i>LOC110121286</i>	110121286		
<i>GJD2-DT</i>	101928174	<i>FBN1-DT</i>	105370809		
<i>AC009123.1</i>	654780	<i>LOC112577578</i>	112577578		
<i>AC107953.2</i>	101927513	<i>LOC110121275</i>	110121275		
<i>AC011092.2</i>	101928008	<i>LOC110120917</i>	110120917		
<i>AL590627.1</i>	651337	<i>AGK-DT</i>	105375538		
<i>AC109446.2</i>	102723692	<i>LOC112679198</i>	112679198		
<i>AP002008.4</i>	728196	<i>LOC110121280</i>	110121280		
<i>FKBP14-AS1</i>	105375215	<i>LOC112577524</i>	112577524		

Supplementary Table S3. Clinical characteristics of the study subjects.

	Natural conception (n = 27)	IVF (n = 5)	ICSI (n = 8)	P value
Maternal age (years) ^a	33.67 ± 4.45	37.40 ± 2.07	34.50 ± 2.39	NS ^b
Pre-pregnant BMI	22.65 ± 2.67	19.98 ± 1.51	27.65 ± 5.18	0.002 ^b
Gestational age	38.69 ± 1.59	40.03 ± 1.47	38.14 ± 2.50	NS ^b
Sex of child (Males,	12 males, 15 females	3 males, 2 females	3 males, 5 females	NS ^c

^a Mean ± Standard Deviation. ^b ANOVA, analysis of variance. ^c Fisher's exact test. BMI = body weight (kg) / body height² (m²). BMI, body mass index. NS, non-significant.

Supplementary Table S4. Genes with deH3K4me3 in IVF and ICSI children

Group	Term	entrezID	logFC	P-Value	FDR	up_down
boy_ICSI-ET_vs_boy_ctrl						
boy_ICSI-ET_vs_boy_ctrl	C20orf112	140688	4.92599587	5.97E-45	1.21E-40	up
boy_ICSI-ET_vs_boy_ctrl	UNC119	9094	5.34639336	1.58E-23	1.60E-19	up
boy_ICSI-ET_vs_boy_ctrl	RP11-410N8.4	NA	4.33050403	7.40E-23	4.99E-19	up
boy_ICSI-ET_vs_boy_ctrl	PRODH2	58510	5.13961245	1.43E-19	7.24E-16	up
boy_ICSI-ET_vs_boy_ctrl	SGK494	124923	4.14355436	1.61E-15	6.50E-12	up
boy_ICSI-ET_vs_boy_ctrl	AC004017.1	NA	3.66329263	3.51E-12	1.18E-08	up
boy_ICSI-ET_vs_boy_ctrl	MSH5-SAPCD1	100532732	7.70851597	5.12E-11	1.29E-07	up
boy_ICSI-ET_vs_boy_ctrl	MSH5	4439	7.70851593	5.12E-11	1.29E-07	up
boy_ICSI-ET_vs_boy_ctrl	SAPCD1	401251	8.06607382	5.92E-11	1.33E-07	up
boy_ICSI-ET_vs_boy_ctrl	DEFB125	245938	3.12947277	3.17E-10	6.40E-07	up
boy_ICSI-ET_vs_boy_ctrl	AGER	177	6.34253228	9.31E-10	1.71E-06	up
boy_ICSI-ET_vs_boy_ctrl	ZNF134	7693	3.08911516	1.55E-09	2.61E-06	up
boy_ICSI-ET_vs_boy_ctrl	MDC1	9656	7.61694939	1.78E-09	2.77E-06	up
boy_ICSI-ET_vs_boy_ctrl	PBX2	5089	5.94833348	2.68E-09	3.86E-06	up
boy_ICSI-ET_vs_boy_ctrl	PSENEN	55851	3.2097434	4.25E-09	5.73E-06	up
boy_ICSI-ET_vs_boy_ctrl	RIPK4	54101	-3.5352735	5.56E-09	7.01E-06	down
boy_ICSI-ET_vs_boy_ctrl	AC136604.1	NA	3.0909514	5.90E-09	7.01E-06	up
boy_ICSI-ET_vs_boy_ctrl	CLECL1	160365	-1.2437235	1.70E-08	1.91E-05	down
boy_ICSI-ET_vs_boy_ctrl	AC068533.7	NA	1.9358157	2.61E-08	2.78E-05	up
boy_ICSI-ET_vs_boy_ctrl	PRB1	5542	-2.5925126	4.11E-08	4.16E-05	down
boy_ICSI-ET_vs_boy_ctrl	U2AF1L4	199746	2.94432129	5.37E-08	5.17E-05	up
boy_ICSI-ET_vs_boy_ctrl	P2RX2	22953	2.84792393	8.14E-08	6.89E-05	up
boy_ICSI-ET_vs_boy_ctrl	ZNF611	81856	2.78910253	8.16E-08	6.89E-05	up
boy_ICSI-ET_vs_boy_ctrl	KIAA0100	9703	2.72447477	8.18E-08	6.89E-05	up
boy_ICSI-ET_vs_boy_ctrl	ZNF146	7705	2.74796576	8.63E-08	6.98E-05	up
boy_ICSI-ET_vs_boy_ctrl	MUC8	100129528	2.84320103	1.14E-07	8.82E-05	up
boy_ICSI-ET_vs_boy_ctrl	ZNF530	348327	2.57946297	1.25E-07	9.28E-05	up
boy_ICSI-ET_vs_boy_ctrl	MCCC2	64087	3.8530375	1.34E-07	9.28E-05	up
boy_ICSI-ET_vs_boy_ctrl	IGFLR1	79713	2.76988716	1.38E-07	9.28E-05	up
boy_ICSI-ET_vs_boy_ctrl	AHRR	57491	1.51219472	1.38E-07	9.28E-05	up
boy_ICSI-ET_vs_boy_ctrl	CTD-2616J11.4	NA	2.7406032	1.44E-07	9.42E-05	up
boy_ICSI-ET_vs_boy_ctrl	ZNF382	84911	2.60230926	2.19E-07	0.000139	up
boy_ICSI-ET_vs_boy_ctrl	HCST	10870	2.81835788	2.27E-07	0.000139	up
boy_ICSI-ET_vs_boy_ctrl	ANKRD29	147463	1.99501274	2.56E-07	0.000148	up
boy_ICSI-ET_vs_boy_ctrl	ZNF772	400720	2.51415393	2.57E-07	0.000148	up
boy_ICSI-ET_vs_boy_ctrl	AD000671.6	NA	2.65306466	3.49E-07	0.000196	up
boy_ICSI-ET_vs_boy_ctrl	ZNF776	284309	2.45411441	4.72E-07	0.000258	up
boy_ICSI-ET_vs_boy_ctrl	CLDND2	125875	2.58284897	5.69E-07	0.000299	up
boy_ICSI-ET_vs_boy_ctrl	OR7D2	162998	2.68745085	5.77E-07	0.000299	up
boy_ICSI-ET_vs_boy_ctrl	C5orf60	285679	2.6284734	8.92E-07	0.000451	up
boy_ICSI-ET_vs_boy_ctrl	ZNF154	7710	2.5640841	9.38E-07	0.000462	up
boy_ICSI-ET_vs_boy_ctrl	ZNF583	147949	2.32671392	1.19E-06	0.000559	up
boy_ICSI-ET_vs_boy_ctrl	ZNF575	284346	2.27317966	2.04E-06	0.000935	up
boy_ICSI-ET_vs_boy_ctrl	HOXA11	3207	2.15372152	2.26E-06	0.000995	up
boy_ICSI-ET_vs_boy_ctrl	NKG7	4818	2.46723642	2.26E-06	0.000995	up
boy_ICSI-ET_vs_boy_ctrl	ZNF805	390980	2.42326909	2.64E-06	0.001118	up

Supplementary Table S4 (continued)

boy_ICSI-ET_vs_boy_ctrl	<i>DDC8</i>	100653515	1.81296493	2.71E-06	0.001118	up
boy_ICSI-ET_vs_boy_ctrl	<i>TIMP2</i>	7077	1.81296535	2.71E-06	0.001118	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZFP82</i>	284406	2.299054	2.83E-06	0.001139	up
boy_ICSI-ET_vs_boy_ctrl	<i>RAB26</i>	25837	1.84232888	2.87E-06	0.001139	up
boy_ICSI-ET_vs_boy_ctrl	<i>ELP4</i>	26610	1.84555436	3.06E-06	0.001188	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF461</i>	92283	2.40923036	3.56E-06	0.001359	up
boy_ICSI-ET_vs_boy_ctrl	<i>SH3GL2</i>	6456	1.70710221	3.63E-06	0.00136	up
boy_ICSI-ET_vs_boy_ctrl	<i>NANOS2</i>	339345	2.0769464	4.08E-06	0.001501	up
boy_ICSI-ET_vs_boy_ctrl	<i>AC004076.9</i>	NA	2.15212934	4.39E-06	0.00157	up
boy_ICSI-ET_vs_boy_ctrl	<i>PTCD3</i>	55037	1.58453589	4.43E-06	0.00157	up
boy_ICSI-ET_vs_boy_ctrl	<i>DNAH9</i>	1770	1.9723031	4.76E-06	0.001658	up
boy_ICSI-ET_vs_boy_ctrl	<i>PIGS</i>	94005	1.57273976	6.64E-06	0.002239	up
boy_ICSI-ET_vs_boy_ctrl	<i>RP11-192H23.4</i>	NA	1.57273969	6.65E-06	0.002239	up
boy_ICSI-ET_vs_boy_ctrl	<i>IGHMBP2</i>	3508	1.73140255	9.83E-06	0.003257	up
boy_ICSI-ET_vs_boy_ctrl	<i>FOXD4</i>	2298	1.59737657	1.23E-05	0.003955	up
boy_ICSI-ET_vs_boy_ctrl	<i>SNX4</i>	8723	1.63903893	1.23E-05	0.003955	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF714</i>	148206	2.19518071	1.28E-05	0.004022	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF726</i>	730087	2.34296717	1.30E-05	0.004022	up
boy_ICSI-ET_vs_boy_ctrl	<i>DEPDC1B</i>	55789	1.67605791	1.31E-05	0.004022	up
boy_ICSI-ET_vs_boy_ctrl	<i>COX7A1</i>	1346	2.34224232	1.39E-05	0.004178	up
boy_ICSI-ET_vs_boy_ctrl	<i>AP002353.1</i>	NA	1.32924589	1.43E-05	0.004178	up
boy_ICSI-ET_vs_boy_ctrl	<i>SLN</i>	6588	1.32924614	1.43E-05	0.004178	up
boy_ICSI-ET_vs_boy_ctrl	<i>AHSP</i>	51327	1.50125134	1.52E-05	0.004383	up
boy_ICSI-ET_vs_boy_ctrl	<i>TXNDC8</i>	255220	2.19387943	1.83E-05	0.005223	up
boy_ICSI-ET_vs_boy_ctrl	<i>RNF182</i>	221687	1.3871946	1.94E-05	0.005458	up
boy_ICSI-ET_vs_boy_ctrl	<i>PRPSAP1</i>	5635	1.35449321	2.13E-05	0.005885	up
boy_ICSI-ET_vs_boy_ctrl	<i>POFUT1</i>	23509	1.88147682	2.30E-05	0.006287	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF468</i>	90333	2.09200854	2.51E-05	0.006762	up
boy_ICSI-ET_vs_boy_ctrl	<i>TMEM82</i>	388595	1.58781721	2.60E-05	0.00684	up
boy_ICSI-ET_vs_boy_ctrl	<i>DGCR6</i>	8214	3.10655948	2.61E-05	0.00684	up
boy_ICSI-ET_vs_boy_ctrl	<i>KIAA1045</i>	23349	1.5678183	2.84E-05	0.007366	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF20</i>	7568	2.15464746	3.24E-05	0.008253	up
boy_ICSI-ET_vs_boy_ctrl	<i>KIF3B</i>	9371	2.16162029	3.27E-05	0.008253	up
boy_ICSI-ET_vs_boy_ctrl	<i>DNAJB14</i>	79982	-3.4638584	3.44E-05	0.0085	down
boy_ICSI-ET_vs_boy_ctrl	<i>IRF2BPL</i>	64207	2.11364975	3.45E-05	0.0085	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF844</i>	284391	2.16415553	3.55E-05	0.008631	up
boy_ICSI-ET_vs_boy_ctrl	<i>ATAD1</i>	84896	1.93193741	3.59E-05	0.008631	up
boy_ICSI-ET_vs_boy_ctrl	<i>AARS2</i>	57505	2.03599249	3.67E-05	0.008733	up
boy_ICSI-ET_vs_boy_ctrl	<i>C1orf159</i>	54991	1.36680443	3.80E-05	0.008938	up
boy_ICSI-ET_vs_boy_ctrl	<i>ARID3C</i>	138715	1.30024664	4.10E-05	0.009517	up
boy_ICSI-ET_vs_boy_ctrl	<i>LIMS1</i>	3987	2.06577043	4.22E-05	0.009704	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF273</i>	10793	2.0841535	4.35E-05	0.009865	up
boy_ICSI-ET_vs_boy_ctrl	<i>PROM2</i>	150696	2.39784359	4.39E-05	0.009865	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF491</i>	126069	2.18753935	4.56E-05	0.01005	up
boy_ICSI-ET_vs_boy_ctrl	<i>CAPNS1</i>	826	2.0262382	4.57E-05	0.01005	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF304</i>	57343	2.19067889	5.31E-05	0.01131	up
boy_ICSI-ET_vs_boy_ctrl	<i>LYPD3</i>	27076	2.25128179	5.31E-05	0.01131	up
boy_ICSI-ET_vs_boy_ctrl	<i>RABL5</i>	64792	1.25961895	5.32E-05	0.01131	up
boy_ICSI-ET_vs_boy_ctrl	<i>PKP4</i>	8502	-1.1417757	5.53E-05	0.011635	down

Supplementary Table S4 (continued)

boy_ICSI-ET_vs_boy_ctrl	<i>F11R</i>	50848	1.41085589	6.17E-05	0.012865	up
boy_ICSI-ET_vs_boy_ctrl	<i>IL7</i>	3574	1.48072855	6.34E-05	0.012946	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZC2HC1A</i>	51101	1.48072875	6.34E-05	0.012946	up
boy_ICSI-ET_vs_boy_ctrl	<i>TMEM132D</i>	121256	1.60016233	6.41E-05	0.012946	up
boy_ICSI-ET_vs_boy_ctrl	<i>USO1</i>	8615	1.34360642	6.53E-05	0.01307	up
boy_ICSI-ET_vs_boy_ctrl	<i>NES</i>	10763	1.5022062	6.62E-05	0.013127	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZFP90</i>	146198	2.06137336	6.78E-05	0.01327	up
boy_ICSI-ET_vs_boy_ctrl	<i>SLC13A2</i>	9058	2.21658236	6.83E-05	0.01327	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF626</i>	199777	1.99380762	7.02E-05	0.013517	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF175</i>	7728	2.05052308	7.45E-05	0.014213	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF625-ZNF20</i>	100529855	2.02461543	7.71E-05	0.01457	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF416</i>	55659	2.05849861	7.92E-05	0.014819	up
boy_ICSI-ET_vs_boy_ctrl	<i>B4GALNT4</i>	338707	2.01165118	8.05E-05	0.014929	up
boy_ICSI-ET_vs_boy_ctrl	<i>TMPRSS13</i>	84000	1.45368427	8.62E-05	0.015843	up
boy_ICSI-ET_vs_boy_ctrl	<i>PCLO</i>	27445	1.43351736	9.36E-05	0.01704	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF652</i>	22834	1.48504003	9.72E-05	0.017545	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF576</i>	79177	2.13051459	0.00010154	0.018163	up
boy_ICSI-ET_vs_boy_ctrl	<i>GALNT7</i>	51809	1.47123718	0.00010471	0.018558	up
boy_ICSI-ET_vs_boy_ctrl	<i>TUB</i>	7275	1.51300778	0.00010742	0.018558	up
boy_ICSI-ET_vs_boy_ctrl	<i>AL354993.1</i>	NA	1.33909458	0.00011684	0.019867	up
boy_ICSI-ET_vs_boy_ctrl	<i>TRAPPC2P1</i>	10597	2.01362971	0.00011697	0.019867	up
boy_ICSI-ET_vs_boy_ctrl	<i>ALKBH6</i>	84964	2.02949416	0.00011859	0.019975	up
boy_ICSI-ET_vs_boy_ctrl	<i>RCBTB2</i>	1102	-1.0624622	0.00012095	0.020087	down
boy_ICSI-ET_vs_boy_ctrl	<i>FGFR3</i>	2261	1.31655848	0.00012124	0.020087	up
boy_ICSI-ET_vs_boy_ctrl	<i>TDRD10</i>	126668	1.0872039	0.00013582	0.022321	up
boy_ICSI-ET_vs_boy_ctrl	<i>TRAPPC10</i>	7109	-1.2776805	0.00014616	0.023825	down
boy_ICSI-ET_vs_boy_ctrl	<i>SNRPN</i>	6638	1.84488884	0.00014832	0.023984	up
boy_ICSI-ET_vs_boy_ctrl	<i>PPM1H</i>	57460	1.44681433	0.00015025	0.024104	up
boy_ICSI-ET_vs_boy_ctrl	<i>KCNK4</i>	50801	1.08730489	0.00015149	0.02411	up
boy_ICSI-ET_vs_boy_ctrl	<i>SLC25A16</i>	8034	1.24666965	0.00016525	0.026028	up
boy_ICSI-ET_vs_boy_ctrl	<i>SLC25A37</i>	51312	1.35136796	0.00016611	0.026028	up
boy_ICSI-ET_vs_boy_ctrl	<i>TPPP3</i>	51673	1.62947348	0.00017611	0.027382	up
boy_ICSI-ET_vs_boy_ctrl	<i>COL9A2</i>	1298	1.36321917	0.00017897	0.027615	up
boy_ICSI-ET_vs_boy_ctrl	<i>SLC25A21</i>	89874	1.33557364	0.00018266	0.027672	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZAP70</i>	7535	1.6624319	0.00018934	0.027672	up
boy_ICSI-ET_vs_boy_ctrl	<i>VGLL3</i>	389136	1.40765968	0.00019009	0.027672	up
boy_ICSI-ET_vs_boy_ctrl	<i>RP4-583P15.14</i>	NA	1.15666074	0.00019089	0.027672	up
boy_ICSI-ET_vs_boy_ctrl	<i>LIME1</i>	54923	1.15666131	0.00019107	0.027672	up
boy_ICSI-ET_vs_boy_ctrl	<i>RP4-583P15.15</i>	NA	1.15666173	0.0001912	0.027672	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZGPAT</i>	84619	1.15666215	0.00019133	0.027672	up
boy_ICSI-ET_vs_boy_ctrl	<i>ELAVL2</i>	1993	1.58802576	0.00019167	0.027672	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF701</i>	55762	1.73975797	0.00019842	0.028444	up
boy_ICSI-ET_vs_boy_ctrl	<i>CCDC71</i>	64925	1.99512986	0.00021233	0.030224	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZYX</i>	7791	3.51397556	0.00021443	0.030309	up
boy_ICSI-ET_vs_boy_ctrl	<i>DKK3</i>	27122	1.28582473	0.00021942	0.030799	up
boy_ICSI-ET_vs_boy_ctrl	<i>SCUBE2</i>	57758	1.47839621	0.00022131	0.03085	up
boy_ICSI-ET_vs_boy_ctrl	<i>CREB1</i>	1385	1.68425417	0.00022646	0.031271	up
boy_ICSI-ET_vs_boy_ctrl	<i>CDRT4</i>	284040	1.82786341	0.00022897	0.031271	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF160</i>	90338	1.80221097	0.0002326	0.031554	up

Supplementary Table S4 (continued)

boy_ICSI-ET_vs_boy_ctrl	ZNF880	400713	1.90377897	0.00023431	0.031574	up
boy_ICSI-ET_vs_boy_ctrl	C5orf38	153571	1.81682799	0.00024104	0.032146	up
boy_ICSI-ET_vs_boy_ctrl	DNAJC5G	285126	1.24125916	0.00024174	0.032146	up
boy_ICSI-ET_vs_boy_ctrl	RPF1	80135	-1.0596504	0.00024348	0.032166	down
boy_ICSI-ET_vs_boy_ctrl	SDHAF1	644096	2.06398483	0.00024656	0.032276	up
boy_ICSI-ET_vs_boy_ctrl	TMEM132E	124842	1.75053448	0.00024751	0.032276	up
boy_ICSI-ET_vs_boy_ctrl	TVP23C	201158	1.88906338	0.00025146	0.032424	up
boy_ICSI-ET_vs_boy_ctrl	IRX2	153572	1.87497088	0.00025185	0.032424	up
boy_ICSI-ET_vs_boy_ctrl	ZNF613	79898	1.8552276	0.0002553	0.03248	up
boy_ICSI-ET_vs_boy_ctrl	BCS1L	617	1.84221624	0.00025549	0.03248	up
boy_ICSI-ET_vs_boy_ctrl	XPO7	23039	1.20891338	0.00026009	0.032857	up
boy_ICSI-ET_vs_boy_ctrl	WASH4P	374677	1.86163323	0.00026503	0.033068	up
boy_ICSI-ET_vs_boy_ctrl	C1orf110	339512	1.75009376	0.00027059	0.033555	up
boy_ICSI-ET_vs_boy_ctrl	APLP1	333	1.90789728	0.00027395	0.033754	up
boy_ICSI-ET_vs_boy_ctrl	KSR1	8844	1.21178422	0.00027978	0.034067	up
boy_ICSI-ET_vs_boy_ctrl	PODNL1	79883	1.47707719	0.00028249	0.034139	up
boy_ICSI-ET_vs_boy_ctrl	TWIST1	7291	1.18946323	0.00028527	0.034139	up
boy_ICSI-ET_vs_boy_ctrl	KBTBD4	55709	1.64706654	0.00028544	0.034139	up
boy_ICSI-ET_vs_boy_ctrl	DCLK3	85443	1.40539793	0.00028857	0.034311	up
boy_ICSI-ET_vs_boy_ctrl	IRX1	79192	1.52871115	0.00029981	0.035246	up
boy_ICSI-ET_vs_boy_ctrl	ADAM33	80332	1.6817225	0.00030185	0.035268	up
boy_ICSI-ET_vs_boy_ctrl	UBAC2	337867	1.05710843	0.0003066	0.035617	up
boy_ICSI-ET_vs_boy_ctrl	KLHL17	339451	1.90417955	0.00031699	0.036405	up
boy_ICSI-ET_vs_boy_ctrl	MCMBP	79892	1.35167221	0.00032214	0.036551	up
boy_ICSI-ET_vs_boy_ctrl	SLC7A2	6542	1.58275449	0.00032528	0.036551	up
boy_ICSI-ET_vs_boy_ctrl	PCDH7	5099	1.30105316	0.00032733	0.036551	up
boy_ICSI-ET_vs_boy_ctrl	TVP23C-CDRT4	100533496	1.79825192	0.00032889	0.036551	up
boy_ICSI-ET_vs_boy_ctrl	PDGFRL	5157	1.42347623	0.00032911	0.036551	up
boy_ICSI-ET_vs_boy_ctrl	ACTN4	81	1.70389456	0.00033414	0.036907	up
boy_ICSI-ET_vs_boy_ctrl	LGI2	55203	1.59477146	0.00033795	0.037125	up
boy_ICSI-ET_vs_boy_ctrl	CIZ1	25792	1.21675163	0.00036295	0.03961	up
boy_ICSI-ET_vs_boy_ctrl	SHMT2	6472	1.02023749	0.00036813	0.03961	up
boy_ICSI-ET_vs_boy_ctrl	UTS2	10911	-1.5957309	0.00036841	0.03961	down
boy_ICSI-ET_vs_boy_ctrl	UBE3D	90025	1.41093922	0.00038078	0.040531	up
boy_ICSI-ET_vs_boy_ctrl	LRRC9	341883	1.18122166	0.00038099	0.040531	up
boy_ICSI-ET_vs_boy_ctrl	CRABP2	1382	1.7785691	0.00038709	0.040964	up
boy_ICSI-ET_vs_boy_ctrl	UBL5	59286	1.40058559	0.00041081	0.043047	up
boy_ICSI-ET_vs_boy_ctrl	FBXL12	54850	1.40058595	0.00041103	0.043047	up
boy_ICSI-ET_vs_boy_ctrl	PRKD3	23683	-1.1936396	0.00041337	0.04307	down
boy_ICSI-ET_vs_boy_ctrl	ZNF829	374899	1.77587532	0.00042467	0.04402	up
boy_ICSI-ET_vs_boy_ctrl	SYT2	127833	1.27458525	0.00042982	0.044326	up
boy_ICSI-ET_vs_boy_ctrl	SIGLEC8	27181	1.88186082	0.00043621	0.044757	up
boy_ICSI-ET_vs_boy_ctrl	C9orf53	51198	1.16302755	0.00045408	0.045478	up
boy_ICSI-ET_vs_boy_ctrl	FAM150B	285016	1.18981365	0.00045587	0.045478	up
boy_ICSI-ET_vs_boy_ctrl	HIPK3	10114	1.58933105	0.00045706	0.045478	up
boy_ICSI-ET_vs_boy_ctrl	MOGAT2	80168	1.26228182	0.00045889	0.045478	up
boy_ICSI-ET_vs_boy_ctrl	PTPMT1	114971	1.44010214	0.0004608	0.045478	up
boy_ICSI-ET_vs_boy_ctrl	NDUFS3	4722	1.44010264	0.00046094	0.045478	up
boy_ICSI-ET_vs_boy_ctrl	SIPA1L1	26037	1.32379762	0.00046124	0.045478	up

Supplementary Table S4 (continued)

boy_ICSI-ET_vs_boy_ctrl	<i>CIB4</i>	130106	1.18322791	0.00046999	0.046116	up
boy_ICSI-ET_vs_boy_ctrl	<i>ZNF214</i>	7761	1.63137814	0.00048516	0.047375	up
boy_ICSI-ET_vs_boy_ctrl	<i>FRMPD2</i>	143162	1.24894577	0.00049466	0.04807	up
boy_ICSI-ET_vs_boy_ctrl	<i>KIRREL2</i>	84063	1.90167936	0.0005046	0.048802	up
boy_ICSI-ET_vs_boy_ctrl	<i>EHD1</i>	10938	1.43435451	0.00050774	0.048871	up
boy_IVF-ET_vs_boy_ctrl						
boy_IVF-ET_vs_boy_ctrl	<i>DNAJB14</i>	79982	-2.8848109	1.31E-07	0.002642	down
boy_IVF-ET_vs_boy_ctrl	<i>TRIM16L</i>	147166	-1.1160228	5.21E-07	0.005264	down
girl_ICSI-ET_vs_girl_ctrl						
girl_ICSI-ET_vs_girl_ctrl	<i>DAXX</i>	1616	8.27227009	3.17E-08	0.000406	up
girl_ICSI-ET_vs_girl_ctrl	<i>AC008132.1</i>	NA	3.99784422	4.60E-08	0.000406	up
girl_ICSI-ET_vs_girl_ctrl	<i>SYNGAP1</i>	8831	5.21917778	6.02E-08	0.000406	up
girl_ICSI-ET_vs_girl_ctrl	<i>C20orf112</i>	140688	4.44985493	1.55E-07	0.000785	up
girl_ICSI-ET_vs_girl_ctrl	<i>EGFR</i>	1956	1.37831816	4.04E-07	0.001631	up
girl_ICSI-ET_vs_girl_ctrl	<i>KSR1</i>	8844	3.91267179	8.82E-07	0.002971	up
girl_ICSI-ET_vs_girl_ctrl	<i>PRB1</i>	5542	-1.7047488	1.72E-06	0.004967	down
girl_ICSI-ET_vs_girl_ctrl	<i>ZBTB22</i>	9278	7.03523507	2.19E-06	0.005542	up
girl_ICSI-ET_vs_girl_ctrl	<i>RND3</i>	390	-1.9885559	3.60E-06	0.008082	down
girl_ICSI-ET_vs_girl_ctrl	<i>FLYWCH2</i>	114984	-2.2629414	5.90E-06	0.011923	down
girl_ICSI-ET_vs_girl_ctrl	<i>RP11-410N8.4</i>	NA	3.7040231	8.43E-06	0.013978	up
girl_ICSI-ET_vs_girl_ctrl	<i>SLC12A1</i>	6557	-1.8672576	1.21E-05	0.013978	down
girl_ICSI-ET_vs_girl_ctrl	<i>LAMC2</i>	3918	1.35187385	1.28E-05	0.013978	up
girl_ICSI-ET_vs_girl_ctrl	<i>POU2F2</i>	5452	-2.0118085	1.39E-05	0.013978	down
girl_ICSI-ET_vs_girl_ctrl	<i>MDC1</i>	9656	6.45373712	1.53E-05	0.013978	up
girl_ICSI-ET_vs_girl_ctrl	<i>ART4</i>	420	-1.5767518	1.80E-05	0.014387	down
girl_ICSI-ET_vs_girl_ctrl	<i>NEDD8-MDP1</i>	100528064	1.66971277	2.70E-05	0.014387	up
girl_ICSI-ET_vs_girl_ctrl	<i>NEDD8</i>	4738	1.6697121	2.70E-05	0.014387	up
girl_ICSI-ET_vs_girl_ctrl	<i>CROCC</i>	9696	-1.0767357	2.89E-05	0.014387	down
girl_ICSI-ET_vs_girl_ctrl	<i>PCED1A</i>	64773	1.33527261	2.93E-05	0.014387	up
girl_ICSI-ET_vs_girl_ctrl	<i>IGSF6</i>	10261	-1.0037654	3.36E-05	0.0153	down
girl_ICSI-ET_vs_girl_ctrl	<i>REPS2</i>	9185	-1.6544346	3.41E-05	0.0153	down
girl_ICSI-ET_vs_girl_ctrl	<i>AJAP1</i>	55966	-2.1244098	3.45E-05	0.0153	down
girl_ICSI-ET_vs_girl_ctrl	<i>HLA-DRB5</i>	3127	-4.6328422	3.67E-05	0.0153	down
girl_ICSI-ET_vs_girl_ctrl	<i>ACBD6</i>	84320	-1.5641958	4.15E-05	0.0153	down
girl_ICSI-ET_vs_girl_ctrl	<i>UNC119</i>	9094	3.33344709	4.53E-05	0.0153	up
girl_ICSI-ET_vs_girl_ctrl	<i>NOVA2</i>	4858	1.88028236	4.58E-05	0.0153	up
girl_ICSI-ET_vs_girl_ctrl	<i>SMN2</i>	6607	4.78688491	5.68E-05	0.015319	up
girl_ICSI-ET_vs_girl_ctrl	<i>SIGLEC9</i>	27180	-1.0740075	6.53E-05	0.015573	down
girl_ICSI-ET_vs_girl_ctrl	<i>PRODH2</i>	58510	3.72580246	9.03E-05	0.01636	up
girl_ICSI-ET_vs_girl_ctrl	<i>PRX</i>	57716	2.05299622	9.48E-05	0.016435	up
girl_ICSI-ET_vs_girl_ctrl	<i>LAMA1</i>	284217	1.21577144	0.00010963	0.017609	up
girl_ICSI-ET_vs_girl_ctrl	<i>CEP70</i>	80321	-1.3295815	0.00011092	0.017609	down
girl_ICSI-ET_vs_girl_ctrl	<i>HOXA11</i>	3207	1.59487769	0.00011251	0.017629	up
girl_ICSI-ET_vs_girl_ctrl	<i>RIPK4</i>	54101	-1.6649551	0.00012021	0.018472	down
girl_ICSI-ET_vs_girl_ctrl	<i>TBCEL</i>	219899	1.30608148	0.00013446	0.019746	up
girl_ICSI-ET_vs_girl_ctrl	<i>CACNA1E</i>	777	-1.2301598	0.00014201	0.020504	down
girl_ICSI-ET_vs_girl_ctrl	<i>GCDH</i>	2639	1.17372632	0.00014779	0.0206	up
girl_ICSI-ET_vs_girl_ctrl	<i>SYCE2</i>	256126	1.17372625	0.00014786	0.0206	up
girl_ICSI-ET_vs_girl_ctrl	<i>CBR4</i>	84869	1.38687763	0.00015112	0.020779	up

Supplementary Table S4 (continued)

girl_ICSI-ET_vs_girl_ctrl	ZNF701	55762	1.54502183	0.0001557	0.020985	up
girl_ICSI-ET_vs_girl_ctrl	<i>CHIT1</i>	1118	-1.6408333	0.00016609	0.020985	down
girl_ICSI-ET_vs_girl_ctrl	<i>RNMTL1</i>	55178	-1.0730152	0.00018559	0.021974	down
girl_ICSI-ET_vs_girl_ctrl	<i>THYN1</i>	29087	1.16448061	0.00018908	0.021974	up
girl_ICSI-ET_vs_girl_ctrl	<i>ACAD8</i>	27034	1.16448036	0.00018916	0.021974	up
girl_ICSI-ET_vs_girl_ctrl	<i>TSC22D2</i>	9819	1.37983422	0.00020802	0.022851	up
girl_ICSI-ET_vs_girl_ctrl	<i>SLC25A37</i>	51312	1.11517186	0.00022221	0.023641	up
girl_ICSI-ET_vs_girl_ctrl	<i>AKAP7</i>	9465	-1.6197997	0.00023463	0.023999	down
girl_ICSI-ET_vs_girl_ctrl	<i>AXL</i>	558	-1.6500437	0.00024938	0.024469	down
girl_ICSI-ET_vs_girl_ctrl	<i>CEP97</i>	79598	1.31080438	0.00025441	0.024543	up
girl_ICSI-ET_vs_girl_ctrl	<i>HNF1A</i>	6927	-1.8939073	0.00025719	0.024543	down
girl_ICSI-ET_vs_girl_ctrl	<i>CLU</i>	1191	1.35304112	0.00026063	0.024543	up
girl_ICSI-ET_vs_girl_ctrl	<i>GPRIN1</i>	114787	1.68253748	0.00026477	0.024549	up
girl_ICSI-ET_vs_girl_ctrl	<i>HNRNPUL1</i>	11100	-1.5414583	0.00028461	0.024901	down
girl_ICSI-ET_vs_girl_ctrl	<i>PIP4K2B</i>	8396	-3.7044092	0.00032456	0.026453	down
girl_ICSI-ET_vs_girl_ctrl	<i>KIDINS220</i>	57498	-1.4032351	0.00033254	0.026598	down
girl_ICSI-ET_vs_girl_ctrl	<i>CNBD1</i>	168975	1.10527788	0.00033914	0.026598	up
girl_ICSI-ET_vs_girl_ctrl	<i>LRG1</i>	116844	-1.3350837	0.00039109	0.028334	down
girl_ICSI-ET_vs_girl_ctrl	<i>MUC8</i>	100129528	2.19089508	0.00043133	0.030262	up
girl_ICSI-ET_vs_girl_ctrl	<i>GPN3</i>	51184	1.21757861	0.00046419	0.03138	up
girl_ICSI-ET_vs_girl_ctrl	<i>TLR10</i>	81793	-1.018656	0.0004797	0.03179	down
girl_ICSI-ET_vs_girl_ctrl	<i>CDC25A</i>	993	-1.1575292	0.00051343	0.033585	down
girl_ICSI-ET_vs_girl_ctrl	<i>ZSCAN2</i>	54993	1.17176828	0.00064619	0.03808	up
girl_ICSI-ET_vs_girl_ctrl	<i>VCPIP1</i>	80124	1.38457825	0.00066524	0.038751	up
girl_ICSI-ET_vs_girl_ctrl	<i>ATG5</i>	9474	-1.1792187	0.00067734	0.038898	down
girl_ICSI-ET_vs_girl_ctrl	<i>NOS2</i>	4843	2.98132414	0.00069066	0.039214	up
girl_ICSI-ET_vs_girl_ctrl	<i>TMEM87B</i>	84910	-1.0210324	0.00071485	0.040026	down
girl_ICSI-ET_vs_girl_ctrl	<i>MRPS7</i>	51081	-2.0357772	0.00072652	0.040033	down
girl_ICSI-ET_vs_girl_ctrl	<i>SGK494</i>	124923	2.71894543	0.00072884	0.040033	up
girl_ICSI-ET_vs_girl_ctrl	<i>NKX2-6</i>	137814	-1.1874509	0.00073715	0.040301	down
girl_ICSI-ET_vs_girl_ctrl	<i>U2AF1L4</i>	199746	2.25505949	0.00081144	0.041196	up
girl_ICSI-ET_vs_girl_ctrl	<i>CPA1</i>	1357	-1.2314296	0.00081188	0.041196	down
girl_ICSI-ET_vs_girl_ctrl	<i>PSENEN</i>	55851	2.26368094	0.00082079	0.041373	up
girl_ICSI-ET_vs_girl_ctrl	<i>ABCC3</i>	8714	1.03346488	0.00088199	0.043271	up
girl_ICSI-ET_vs_girl_ctrl	<i>USP10</i>	9100	-1.4768489	0.00089335	0.04359	down
girl_ICSI-ET_vs_girl_ctrl	<i>ACMSD</i>	130013	1.00648588	0.00094244	0.045249	up
girl_ICSI-ET_vs_girl_ctrl	<i>MIF4GD</i>	57409	-1.6830075	0.00101865	0.047237	down
girl_ICSI-ET_vs_girl_ctrl	<i>CNIH3</i>	149111	1.18382995	0.00108852	0.049188	up
girl_ICSI-ET_vs_girl_ctrl	<i>CD300C</i>	10871	1.41865142	0.00111536	0.049376	up
girl_IVF-ET_vs_girl_ctrl						
girl_IVF-ET_vs_girl_ctrl	<i>HLA-DOA</i>	3111	-7.9621569	6.05E-07	0.01222	down
girl_IVF-ET_vs_girl_ctrl	<i>SAPCD1</i>	401251	-8.168067	1.91E-06	0.019277	down
girl_IVF-ET_vs_girl_ctrl	<i>TRIM40</i>	135644	-4.3952872	4.04E-06	0.027197	down
girl_IVF-ET_vs_girl_ctrl	<i>MSH5</i>	4439	-6.9173524	9.40E-06	0.038	down
girl_IVF-ET_vs_girl_ctrl	<i>MSH5-SAPCD1</i>	100532732	-6.9173524	9.40E-06	0.038	down

This table showed the comparison results of each gene promoter H3K4me3 read counts between natural conception-boys (n=6) vs ICSI-boys (n=2), natural conception-boys (n=6) vs IVF-boys (n=4), natural conception-girls (n=6) vs ICSI-girls (n=4), and natural conception-girls (n=6) vs IVF-girls (n=4). The comparison was performed via R package ‘edgeR’. The genes with |log FC| >1 and FDR < 0.05 were selected as “genes with deH3K4me3”, compared with the same-gender natural conception groups. FC, fold change; FDR, false discovery rate; IVF, in vitro fertilization.

Supplementary Table S5. Cardiovascular-disease-associated genes with deH3K4me3 in ICSI children

Group	Term	entrezID	logFC	P-Value	FDR	up_down
boy_ICSI-ET_vs_boy_ctrl	<i>AGER</i>	177	6.342532279	9.31E-10	1.71E-06	up
boy_ICSI-ET_vs_boy_ctrl	<i>C5orf60</i>	285679	2.628473399	8.92E-07	0.000450877	up
boy_ICSI-ET_vs_boy_ctrl	<i>TIMP2</i>	7077	1.812965347	2.71E-06	0.00111772	up
boy_ICSI-ET_vs_boy_ctrl	<i>DNAH9</i>	1770	1.9723031	4.76E-06	0.001658116	up
boy_ICSI-ET_vs_boy_ctrl	<i>COX7A1</i>	1346	2.342242319	1.39E-05	0.004178111	up
boy_ICSI-ET_vs_boy_ctrl	<i>SLN</i>	6588	1.32924614	1.43E-05	0.004178111	up
boy_ICSI-ET_vs_boy_ctrl	<i>DGCR6</i>	8214	3.106559485	2.61E-05	0.006839907	up
boy_ICSI-ET_vs_boy_ctrl	<i>IRF2BPL</i>	64207	2.11364975	3.45E-05	0.008499563	up
boy_ICSI-ET_vs_boy_ctrl	<i>C1orf159</i>	54991	1.36680443	3.80E-05	0.008938189	up
boy_ICSI-ET_vs_boy_ctrl	<i>F11R</i>	50848	1.410855893	6.17E-05	0.012864849	up
boy_ICSI-ET_vs_boy_ctrl	<i>NES</i>	10763	1.502206201	6.62E-05	0.013127228	up
boy_ICSI-ET_vs_boy_ctrl	<i>FGFR3</i>	2261	1.316558477	0.00012124	0.020086868	up
boy_ICSI-ET_vs_boy_ctrl	<i>TRAPPC10</i>	7109	-1.27768052	0.00014616	0.023825293	down
boy_ICSI-ET_vs_boy_ctrl	<i>DKK3</i>	27122	1.285824729	0.00021942	0.030799247	up
boy_ICSI-ET_vs_boy_ctrl	<i>SCUBE2</i>	57758	1.478396211	0.00022131	0.030850308	up
boy_ICSI-ET_vs_boy_ctrl	<i>CREB1</i>	1385	1.684254169	0.00022646	0.031270979	up
boy_ICSI-ET_vs_boy_ctrl	<i>SDHAF1</i>	644096	2.063984826	0.00024656	0.03227641	up
boy_ICSI-ET_vs_boy_ctrl	<i>BCS1L</i>	617	1.842216243	0.00025549	0.03247991	up
boy_ICSI-ET_vs_boy_ctrl	<i>XPO7</i>	23039	1.208913378	0.00026009	0.032857326	up
boy_ICSI-ET_vs_boy_ctrl	<i>TWIST1</i>	7291	1.189463226	0.00028527	0.034139243	up
boy_ICSI-ET_vs_boy_ctrl	<i>SHMT2</i>	6472	1.02023749	0.00036813	0.039609656	up
boy_ICSI-ET_vs_boy_ctrl	<i>UTS2</i>	10911	-1.59573088	0.00036841	0.039609656	down
boy_ICSI-ET_vs_boy_ctrl	<i>NDUFS3</i>	4722	1.440102645	0.00046094	0.045478354	up
boy_ICSI-ET_vs_boy_ctrl	<i>SIPA1L1</i>	26037	1.323797625	0.00046124	0.045478354	up
girl_ICSI-ET_vs_girl_ctrl	<i>DAXX</i>	1616	8.272270087	3.17E-08	0.000405905	up
girl_ICSI-ET_vs_girl_ctrl	<i>SYNGAP1</i>	8831	5.219177778	6.02E-08	0.000405905	up
girl_ICSI-ET_vs_girl_ctrl	<i>EGFR</i>	1956	1.378318157	4.04E-07	0.001631279	up
girl_ICSI-ET_vs_girl_ctrl	<i>SLC12A1</i>	6557	-1.86725762	1.21E-05	0.013977922	down
girl_ICSI-ET_vs_girl_ctrl	<i>CACNA1E</i>	777	-1.23015984	0.00014201	0.020503788	down
girl_ICSI-ET_vs_girl_ctrl	<i>HNF1A</i>	6927	-1.89390727	0.00025719	0.024542722	down
girl_ICSI-ET_vs_girl_ctrl	<i>CLU</i>	1191	1.353041117	0.00026063	0.024542722	up
girl_ICSI-ET_vs_girl_ctrl	<i>GPRIN1</i>	114787	1.682537484	0.00026477	0.024549092	up
girl_ICSI-ET_vs_girl_ctrl	<i>ATG5</i>	9474	-1.17921866	0.00067734	0.038898426	down
girl_ICSI-ET_vs_girl_ctrl	<i>NOS2</i>	4843	2.981324137	0.00069066	0.039214454	up
girl_ICSI-ET_vs_girl_ctrl	<i>NKX2-6</i>	137814	-1.18745086	0.00073715	0.040301159	down
girl_ICSI-ET_vs_girl_ctrl	<i>USP10</i>	9100	-1.47684886	0.00089335	0.043590481	down

This table showed the overlapping results of cardiovascular-disease-associated genes and the genes with deH3K4me3 in ICSI children.

Supplementary Table S6. Transcription factor analysis for genes with H3K4me3 enrichment in 4-cell, 8-cell, and ICM stages

motif	NES	AUC	TF_highConf	nEnrGenes	rankAtMax
4 cell					
tfdimers__MD00344	6.83	0.157	HOXA13	5	303
dbcorrdb__ZNF274__ENCSR000EVR_1_m	5.96	0.139	ZNF274 (directAnnotation).	9	2689
dbcorrdb__ZNF274__ENCSR000EVG_1_m	5.75	0.134	ZNF274 (directAnnotation).	8	1794
transfac_pro__M05282	5.69	0.133		4	399
transfac_pro__M05883	5.26	0.124	ZNF709 (directAnnotation).	3	57
predrem__nrMotif431	5.21	0.123		3	66
transfac_pro__M06894	5.14	0.122	ZFP90 (inferredBy_Ontology).	4	338
dbcorrdb__CHD1__ENCSR000AQK_1_m1	5.09	0.121	CHD1 (directAnnotation).	3	87
predrem__nrMotif621	4.87	0.116		5	598
dbcorrdb__eGFP-	4.74	0.114		4	465
NR4A1__ENCSR000DJW_1_m1					
taipale_cyt_meth__ZNF524_NYTCGNACCC	4.72	0.113	ZNF524 (directAnnotation).	3	152
KN_FL_repr					
cisbp__M4839	4.67	0.112	KLF17; KLF18 (inferredBy_Ontology).	5	577
dbcorrdb__ZNF274__ENCSR000EVR_1_m	4.66	0.112	ZNF274 (directAnnotation).	3	188
elemento__CTCGCCC	4.61	0.111		3	161
tiffin__TIFDMEM0000047	4.53	0.109		4	614
dbcorrdb__STAT5A__ENCSR000BQZ_1_m	4.43	0.107	STAT5A (directAnnotation).	4	577
flyfactorsurvey__CG3065_F1-5_SOLEXA_2.5_FBgn0034946	4.33	0.105	KLF17; KLF18 (inferredBy_Ontology).	5	580
transfac_pro__M05881	4.31	0.105	ZNF676 (directAnnotation).	3	338
neph__UW.Motif.0020	4.3	0.105		3	315
transfac_pro__M06415	4.3	0.105	ZNF429 (directAnnotation).	3	295
taipale_cyt_meth__PAX3_NS GTCACGSNNA	4.28	0.104	PAX3 (directAnnotation).	3	283
TTAN_eDBD_meth					
transfac_pro__M07628	4.27	0.104	TFAP2A; TFAP2B; TFAP2C; TFAP2D; TFAP2E	5	652
taipale_tf_pairs__GCM1_PITX1_GGATTANN	4.24	0.103	GCM1; PITX1 (directAnnotation).	3	307
NNNNNNNTGC GGG_CAP_repr					
elemento__AATCCCAGC	4.23	0.103		7	1794
swissregulon__hs__EN1_2.p2	4.2	0.102	EN1; EN2 (directAnnotation).	3	188
cisbp__M5784	4.19	0.102	RHOXF1	3	286
taipale_tf_pairs__CEBPG_ATF4_NNATGAY	4.18	0.102	ATF4; CEBPG (directAnnotation).	3	240
GCAAT_CAP					
neph__UW.Motif.0327	4.17	0.102		3	223
transfac_pro__M01785	4.14	0.101		8	3777
tfdimers__MD00209	4.13	0.101	MZF1; TBP (directAnnotation).	3	228
dbcorrdb__ZNF274__ENCSR000EWY_1_m	4.12	0.101	ZNF274 (directAnnotation).	3	338
6					
tfdimers__MD00160	4.12	0.101	CRX; RAX (directAnnotation).	3	181
taipale_cyt_meth__PAX7_NS GTCACGSNNR	4.1	0.1	PAX7 (directAnnotation).	3	292
TTAN_FL_meth					
cisbp__M0032	4.09	0.1		3	252
transfac_pro__M06968	4.06	0.0997	ZNF467 (inferredBy_Ontology).	9	4533

Supplementary Table S6 (continued)

taipale_cyt_meth__KLF15_NCCMCGCCCMY	4.06	0.0996	KLF15 (directAnnotation).	5	690
N_FL_meth					
cisbp_M5522	4.05	0.0994		3	252
flyfactorsurvey_CG3065_F1-3_SANGER_2.5_FBgn0034946	4.04	0.0993	KLF17; KLF18 (inferredBy_Ontology).	6	1794
elemento_CCTCCTCC	4.03	0.0991		5	1441
jaspar_MA0971.1	4.03	0.099		3	262
cisbp_M6400	4.02	0.0988	OTX1 (directAnnotation).	4	434
taipale_cyt_meth__KLF13_NRCCACGCCM	4.02	0.0988	KLF13 (directAnnotation).	5	783
YN_FL_meth					
taipale_HNF1B_full_GTTAATNATTAA	4.02	0.0987	HNF1B (directAnnotation).	3	243
transfac_pro_M00684	4.01	0.0987		3	299
predrem_nrMotif814	4.01	0.0987		4	931
taipale_RHOXF1_full_GGMTNAKCC_repr	4	0.0985	RHOXF1	9	4993
transfac_pro_M05224	4	0.0984		2	38
cisbp_M4761	4	0.0984		3	240
taipale_tf_pairs_ATF4_CEBPD_NGATGAT	3.99	0.0982	ATF4; CEBPD (directAnnotation).	5	928
GCAATNN_CAP					
taipale_tf_pairs_ATF4_CEBPB_NNATGAY	3.99	0.0981	ATF4; CEBPB (directAnnotation).	3	228
GCAAYN_CAP					
taipale_KLF16_DBDB_GCCMCGCCMC_re	3.98	0.0981	KLF16 (directAnnotation).	3	310
pr					
predrem_nrMotif433	3.96	0.0975		3	211
predrem_nrMotif1028	3.95	0.0974		3	280
predrem_nrMotif366	3.93	0.097		3	356
transfac_pro_M09272	3.92	0.0967		3	243
homer_CCTGTCAATCAN_Pbx3	3.91	0.0966	PBX3 (directAnnotation).	5	849
swissregulon_sacCer_TBF1	3.91	0.0965		7	2428
transfac_pro_M05192	3.91	0.0964		5	1331
transfac_pro_M05136	3.9	0.0963		3	399
taipale_MGA_DBDB_AGGTGTKANNTMACA	3.89	0.0961	MGA (directAnnotation).	3	247
CCT_repr					
hocomoco_OTX1_HUMAN.H11MO.0.D	3.88	0.0959	OTX1 (directAnnotation).	4	601
cisbp_M4457	3.84	0.0952	CTCF (directAnnotation).	3	399
predrem_nrMotif369	3.84	0.0952		3	338
taipale_cyt_meth__TFAP2B_NGCCNNNGGC	3.84	0.0951	TFAP2B (directAnnotation).	6	774
N_eDBD					
cisbp_M5741	3.84	0.0951	POU4F2 (directAnnotation).	3	277
cisbp_M4837	3.84	0.095	KLF17; KLF18 (inferredBy_Ontology).	3	399
transfac_pro_M04937	3.82	0.0946	TCF12 (directAnnotation).	3	338
predrem_nrMotif2659	3.82	0.0946		7	1264
jaspar_MA0558.1	3.81	0.0945		3	440
transfac_pro_M06067	3.81	0.0944	ZNF195 (directAnnotation).	2	7
taipale_cyt_meth__KLF13_NRCCACGCCM	3.79	0.0942	KLF13 (directAnnotation).	5	789
YN_FL_repr					
cisbp_M4586	3.78	0.0939	CTCF (directAnnotation).	3	360
transfac_pro_M07038	3.77	0.0936	DBP (directAnnotation).	4	577
taipale_cyt_meth__MAFA_NWWWNTGCTG	3.76	0.0935	MAFA (directAnnotation).	2	35
ACN_eDBD					
taipale_TBX15_DBDB_AGGTGTGA	3.75	0.0933	TBX15 (directAnnotation).	4	577
cisbp_M4584	3.75	0.0933	CTCF (directAnnotation).	3	305
cisbp_M5209	3.74	0.093	SP6; SP7; SP8; SP9 (inferredBy_Ontology).	3	296

Supplementary Table S6 (continued)

taipale_POU4F2_DBDB_NTGMATAATTAAT	3.72	0.0927	POU4F2 (directAnnotation).	3	304
KAG					
taipale_cyt_meth_PAX7_NS GTCACGSNNR	3.72	0.0927	PAX7 (directAnnotation).	3	444
TTAN_FL					
taipale_cyt_meth_KLF13_NRCCACGCCM	3.72	0.0927	KLF13 (directAnnotation).	5	928
YN_eDBD					
fantom_motif109_TCNMTMGC	3.71	0.0924		3	399
dbcrrdb_JUN_ENCSR000EGH_1_m2	3.7	0.0923	JUN (directAnnotation).	5	1264
elemento_CCTCGCC	3.7	0.0923		3	399
transfac_pro_M04880	3.69	0.092	TBP (directAnnotation).	3	434
taipale_cyt_meth_GLIS1_NACCCCCCACG	3.67	0.0916	GLIS1 (directAnnotation).	3	434
WMGN_eDBD					
taipale_cyt_meth_SP3_NRCCMCGCCCMY	3.66	0.0914	SP3 (directAnnotation).	4	614
N_eDBD					
taipale_HNF1B_full_NRTTAATNATTAAACN	3.65	0.0911	HNF1B (directAnnotation).	3	371
taipale_cyt_meth_ZBTB12_NGCTGNCCG	3.64	0.0911	ZBTB12 (directAnnotation).	3	399
CGYN_eDBD_meth					
cisbp_M2351	3.63	0.0907		3	474
transfac_pro_M06356	3.62	0.0907	ZNF425 (directAnnotation).	4	577
cisbp_M0540	3.62	0.0906		3	356
swissregulon_sacCer_LEU3	3.62	0.0905		3	253
			CEBPA; CEBPB; CEBPD;		
transfac_pro_M00770	3.62	0.0905	CEBPE; CEBPG (directAnnotation).	3	341
predrem_nrMotif55	3.61	0.0904		6	2428
cisbp_M5593	3.61	0.0903	KLF16 (directAnnotation).	3	434
flyfactorsurvey_Sp1_SANGER_5_FBgn002	3.61	0.0903	SP6; SP7; SP8; SP9 (inferredBy_Orthology).	3	274
0378			CRX; ZNF333		
tfdimers_MD00060	3.6	0.0903	(directAnnotation).	5	796
cisbp_M5523	3.58	0.0898		3	399
cisbp_M1257	3.58	0.0898		3	465
predrem_nrMotif1247	3.58	0.0898		4	791
taipale_tf_pairs_PITX1_HES7_NCRCGTGN	3.58	0.0897	HES7; PITX1 (directAnnotation).	3	399
NNGGATTA_CAP_repr					
hocomoco_HNF1B_HUMAN.H11MO.1.A	3.57	0.0896	HNF1B (directAnnotation).	3	465
cisbp_M4879	3.57	0.0895		3	299
taipale_cyt_meth_KLF13_NRCCACGCCM	3.56	0.0894	KLF13 (directAnnotation).	5	617
YN_eDBD_meth					
taipale_cyt_meth_PAX3_NS GTCACGSNNA	3.55	0.0892	PAX3 (directAnnotation).	3	434
TTAN_eDBD					
cisbp_M5920	3.55	0.0892	TFAP2C (directAnnotation).	6	1612
elemento_CCTCCGC	3.53	0.0888		4	672
taipale_HNF1A_full_NRTTAATNATTAAACN_	3.53	0.0888	HNF1A (directAnnotation).	5	1441
repr					
transfac_pro_M08186	3.52	0.0886		3	364
neph_UW.Motif.0138	3.52	0.0885		3	356
elemento_TCGCGCA	3.51	0.0884		4	774
cisbp_M4521	3.51	0.0884	CTCF (directAnnotation).	3	399
transfac_pro_M06827	3.51	0.0883	ZBTB11 (directAnnotation).	8	2527
swissregulon_hs_EP300.p2	3.5	0.0882	EP300 (directAnnotation).	2	32
transfac_pro_M06711	3.49	0.0879	ZNF160 (directAnnotation).	3	305
predrem_nrMotif1506	3.48	0.0877		2	76
dbcrrdb_ZNF384_ENCSR000DYP_1_m	3.48	0.0877	ZNF384 (directAnnotation).	3	341
-			CRX (inferredBy_ Orthology).	3	475
jaspar_MA0467.1	3.47	0.0875			

Supplementary Table S6 (continued)

transfac_pro_M09548	3.47	0.0875		3	360
taipale_cyt_meth_KLF15_RCCACGCCCMY_N_eDBD_meth	3.47	0.0875	KLF15 (directAnnotation).	5	985
cisbp_M2176	3.46	0.0872		3	272
predrem_nrMotif1654	3.46	0.0872		3	283
neph_UW.Motif.0435	3.44	0.087		3	465
cisbp_M2269	3.44	0.087	CRX (inferredBy_Ontology).	3	500
stark_ATCWATG	3.44	0.087		2	77
transfac_pro_M06666	3.43	0.0868	ZNF442 (directAnnotation).	3	295
cisbp_M5521	3.43	0.0867	HNF1A (directAnnotation).	5	1264
taipale_cyt_meth_TFAP2B_NGCCNNNGC_N_eDBD_meth	3.4	0.0861	TFAP2B (directAnnotation).	3	361
predrem_nrMotif1157	3.4	0.086		2	15
cisbp_M5881	3.38	0.0856	TBX15 (directAnnotation).	4	614
stark_RTAAMA	3.38	0.0856	FOXC1; FOXC2; FOXS1 (inferredBy_Ontology).	3	577
taipale_cyt_meth_NRL_NWWWNTGCTGA_CN_eDBD_repr	3.37	0.0855	NRL (directAnnotation).	2	18
predrem_nrMotif2548	3.37	0.0855		4	621
predrem_nrMotif1403	3.37	0.0854		4	672
taipale_cyt_meth_ZNF821_NRGACRGACR_GACRN_FL_meth_repr	3.37	0.0854	ZNF821 (directAnnotation).	3	356
jaspar_MA0942.1	3.36	0.0853		2	17
hocomoco_HNF1B_MOUSE.H11MO.1.A	3.36	0.0853	HNF1B (inferredBy_Ontology).	3	299
hocomoco_RARA_HUMAN.H11MO.2.A	3.36	0.0853	RARA (directAnnotation).	2	22
transfac_pro_M05431	3.36	0.0853	ZNF296 (directAnnotation).	3	577
transfac_pro_M06870	3.36	0.0853	ZNF131 (inferredBy_Ontology).	2	37
cisbp_M6444	3.36	0.0852	RARA (directAnnotation).	2	24
dbcordb_RELAY_ENCSR000EBA_1_m3	3.36	0.0852	RELA (directAnnotation).	2	15
taipale_cyt_meth_NRL_NWWWNTGCTGA_CN_eDBD_meth	3.36	0.0852	NRL (directAnnotation).	2	24
taipale_cyt_meth_MAFA_NWWWNTGCTG_ACN_eDBD_meth	3.35	0.0851	MAFA (directAnnotation).	2	23
transfac_pro_M06910	3.35	0.0851	ZNF224 (directAnnotation).	3	402
cisbp_M5119	3.35	0.0851	OTX2 (inferredBy_Ontology).	3	364
taipale_cyt_meth_ZNF821_NRGACRGACR_GACRN_FL	3.35	0.085	ZNF821 (directAnnotation).	4	672
predrem_nrMotif273	3.33	0.0847		2	32
cisbp_M6045	3.33	0.0846	MAFB (inferredBy_Ontology).	2	29
cisbp_M5163	3.33	0.0846	PITX1; PITX2; PITX3 (inferredBy_Ontology).	4	577
dbcordb_RAD21_ENCSR000EHX_1_m1	3.32	0.0845	RAD21 (directAnnotation).	4	475
elemento_CCCGGAG	3.32	0.0845		6	1977
cisbp_M4699	3.31	0.0843	HNF4A (directAnnotation).	2	27
taipale_tf_pairs_HOXB2_ETV7_TAATKNNN_NGN>NNNNCTTCCNN_CAP_repr	3.31	0.0842	ETV7; HOXB2 (directAnnotation).	2	28
taipale_cyt_meth_NRL_NWWWNTGCTGA_CN_FL_meth	3.3	0.0841	NRL (directAnnotation).	2	38
taipale_Mafb_DBM_NNNNTGCTGACN_repr	3.3	0.084	MAFB (inferredBy_Ontology).	2	37
transfac_pro_M06510	3.29	0.0838	ZFP62 (directAnnotation).	2	31
transfac_pro_M06808	3.29	0.0838	ZNF131 (directAnnotation).	2	48

Supplementary Table S6 (continued)

predrem_nrMotif2235	3.28	0.0837		2	35
stark_CMGGAAR	3.28	0.0837	ELF1; ELF2; ELF4 (inferredBy_Orthology).	3	307
transfac_pro_M05193	3.28	0.0836		2	50
taipale_cyt_meth_NRL_NWWWNTGCTGA CN_FL	3.28	0.0836	NRL (directAnnotation).	3	577
transfac_pro_M05700	3.28	0.0835	ZNF19 (directAnnotation).	4	695
predrem_nrMotif1508	3.28	0.0835		2	42
jaspar_MA1012.1	3.27	0.0834		3	465
hdpi_CNOT6	3.27	0.0834	CNOT6 (directAnnotation).	3	399
transfac_pro_M09245	3.27	0.0834		2	36
elemento_CCCTCCTC	3.27	0.0833		2	39
transfac_pro_M06560	3.26	0.0833	ZNF502 (directAnnotation).	2	48
predrem_nrMotif1264	3.26	0.0832		2	31
predrem_nrMotif1325	3.26	0.0831		4	682
elemento_CAGGCC	3.25	0.0831		4	577
neph_UW.Motif.0272	3.25	0.0831		3	434
transfac_pro_M05359	3.25	0.083		2	56
dbcordb_KDM5A_ENCSR000AQL_1_m	3.25	0.083	KDM5A (directAnnotation).	2	40
neph_UW.Motif.0293	3.25	0.083		4	434
transfac_pro_M02773	3.25	0.0829	KLF7 (inferredBy_Orthology).	5	1794
flyfactorsurvey_Bcd_Cell_FBgn0000166	3.25	0.0829		4	774
cisbp_M1185	3.23	0.0827		3	356
transfac_pro_M04784	3.23	0.0826	MYC (directAnnotation).	2	45
hocomoco_DDI3_HUMAN.H11MO.0.D	3.23	0.0825	DDIT3 (directAnnotation).	2	35
dbcordb_POLR2A_ENCSR000DLJ_1_m	3.22	0.0825	POLR2A TGIF1; TGIF2; TGIF2LX;	2	67
transfac_pro_M07760	3.22	0.0824	TGIF2LY (inferredBy_Orthology).	5	1331
CDX2; HNF4A; HNF4G;					
tfdimers_MD00281	3.22	0.0823	NR2F1; NR2F2 (directAnnotation).	2	56
dbcordb_JUN_ENCSR000EEK_1_m1	3.22	0.0823	JUN (directAnnotation).	2	120
transfac_pro_M02802	3.22	0.0823	SOX1 (inferredBy_Orthology).	3	399
hocomoco_CRX_HUMAN.H11MO.0.B	3.21	0.0821	CRX (directAnnotation).	2	56
cisbp_M5915	3.21	0.0821	TFAP2A (directAnnotation).	7	2903
jaspar_MA0159.1	3.2	0.082	RXRA (directAnnotation).	2	73
homer_AAYTAGGTCA_RORgt	3.2	0.082		2	120
hocomoco_ZN524_HUMAN.H11MO.0.D	3.2	0.082	ZNF524 (directAnnotation).	2	69
transfac_pro_M08894	3.2	0.082	OVOL1; OVOL2 (directAnnotation).	2	66
neph_UW.Motif.0040	3.2	0.0819		3	338
predrem_nrMotif1021	3.2	0.0819		2	75
transfac_pro_M09243	3.2	0.0819		2	59
transfac_pro_M01429	3.19	0.0818	HOMEZ (directAnnotation).	4	954
taipale_tf_pairs_GCM2_PITX1_RTRCGGG NNGATTA_CAP_repr	3.19	0.0818	GCM2; PITX1 (directAnnotation).	2	79
tfdimers_MD00397	3.19	0.0818		2	72
tfdimers_MD00153	3.19	0.0818	CRX; DBP (directAnnotation).	2	54
taipale_cyt_meth_MAFG_NWWWNTGCTG ACN_eDBD_meth	3.19	0.0817	MAFG (directAnnotation).	2	48

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transfac_pro_M07690	3.18	0.0816		2	77
taipale_cyt_meth_MAFG_NWWWNTGCTG ACN_eDBD	3.18	0.0816	MAFG (directAnnotation).	3	371
transfac_pro_M05561	3.18	0.0816	HIC2 (inferredBy_Orthology).	3	577
flyfactorsurvey_CG7745_SANGER_5_FBgn 0033616	3.18	0.0815		3	338
homer_GSCTGTCACTCA_PBX1	3.16	0.0812	PBX1 (directAnnotation).	5	1052
swissregulon_hs_MAFB.p2	3.16	0.0812	MAFB (directAnnotation).	2	120
taipale_cyt_meth_ONECUT2_NTATTGATT WN_FL_meth	3.16	0.0812	ONECUT2 (directAnnotation).	2	83
dbcorrdb_SETDB1_ENCSR000EWD_1_m8	3.16	0.0812	SETDB1 (directAnnotation).	2	49
swissregulon_sacCer_USV1	3.16	0.0812		4	601
flyfactorsurvey_LHL106_SANGER_5_3_FB gn0015234	3.16	0.0812	SREBF1; SREBF2 (inferredBy_Orthology).	2	65
neph_UW.Motif.0561	3.16	0.0812		3	399
tiffin_TIFDMEM0000055	3.15	0.081		7	3043
taipale_cyt_meth_ETV7_NMGGAAARNNYTT CCKN_FL_meth	3.15	0.081	ETV7 (directAnnotation).	2	82
taipale_tf_pairs_CUX1_PITX1_GGATTANN NNATCRATN_CAP_repr	3.15	0.081	CUX1; PITX1 (directAnnotation).	2	80
cisbp_M1443	3.15	0.081	HNF4A (inferredBy_Orthology).	2	122
tfdimers_MD00071	3.15	0.081	CEBPA; CEBPB; CEBPD; CEBPE; CEBPG; SOX10 (directAnnotation).	2	90
taipale_tf_pairs_HOXB2_ESRRB_TAATKR NNNNNAAGGTCA_CAP_repr	3.15	0.081	ESRRB; HOXB2 (directAnnotation).	2	80
cisbp_M5609	3.15	0.0809	MAFK (directAnnotation).	2	74
transfac_pro_M09173	3.15	0.0808		2	82
tiffin_TIFDMEM0000077	3.14	0.0807		2	83
taipale_cyt_meth_ONECUT2_NTATTGATY N_eDBD_meth	3.14	0.0807	ONECUT2 (directAnnotation).	2	77
transfac_pro_M02776	3.14	0.0807	MAFK (inferredBy_Orthology).	2	83
homer_NATGTTGCAA_CEBP_AP1	3.14	0.0807	CEBPB; JUN (inferredBy_Orthology).	2	71
hocomoco_HNF6_HUMAN.H11MO.0.B	3.14	0.0807	ONECUT1 (directAnnotation).	2	84
taipale_tf_pairs_MEIS1_SOX2_TGACAKNN NAACAAATGN_CAP_repr	3.14	0.0807	MEIS1; SOX2 (directAnnotation).	3	356
transfac_pro_M04909	3.13	0.0805	ZNF263 (directAnnotation).	2	65
transfac_pro_M06445	3.12	0.0804	ZNF283 (directAnnotation).	2	83
transfac_pro_M03181	3.12	0.0804		2	87
taipale_cyt_meth_ONECUT2_NTATCGATT TN_FL	3.12	0.0804	ONECUT2 (directAnnotation).	2	78
transfac_pro_M06476	3.12	0.0803	ZNF34 (directAnnotation).	4	928
cisbp_M5611	3.11	0.0802	MAFK (directAnnotation).	2	57
taipale_MAFK_DBM_NNNNNNTGCTGAN	3.11	0.0801	MAFK (directAnnotation).	2	87
taipale_tf_pairs_ETV2_RFX5_NNNTTCCGS NNNNGCAACNN_CAP_repr	3.11	0.0801	ETV2; RFX5 (directAnnotation).	3	469
taipale_ONECUT1_full_NNAAAATCRATAWN	3.11	0.0801	ONECUT1 (directAnnotation).	2	99
factorbook_ZNF263	3.11	0.0801	ZNF263 (directAnnotation).	4	860
transfac_pro_M06722	3.11	0.0801	PRDM5 (directAnnotation).	2	120
taipale_cyt_meth_ETV7_NMGGAAARNNYTT CCKN_FL	3.1	0.08	ETV7 (directAnnotation).	4	928

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transfac_pro_M06602	3.1	0.0799	ZNF669 (directAnnotation).	2	55
flyfactorsurvey_Oc_Cell_FBgn0004102	3.1	0.0799	OTX2 (inferredBy_Orthology).	5	1794
transfac_pro_M02878	3.09	0.0797	LEF1 (inferredBy_Orthology).	3	371
cisbp_M3695	3.09	0.0796	EP300 (directAnnotation).	2	79
cisbp_M6356	3.09	0.0796	MZF1 (directAnnotation).	2	94
factorbook_CREB	3.08	0.0795	ATF3 (directAnnotation).	2	80
transfac_pro_M09257	3.08	0.0795		2	97
transfac_pro_M06501	3.08	0.0795	ZNF76 (inferredBy_Orthology).	2	95
transfac_public_M00465	3.08	0.0794	POU6F1 (directAnnotation).	2	59
homer_ATTGCATCAT_Chop	3.07	0.0794	DDIT3 (inferredBy_Orthology).	2	82
stark_AATKACA	3.07	0.0793		2	73
cisbp_M0127	3.07	0.0793		2	94
predrem_nrMotif511	3.07	0.0792		2	73
taipale_cyt_meth_SP9_NCCACGCCMYN_eDBD_meth	3.07	0.0792	SP9 (directAnnotation).	5	652
dbcordb_POLR2A_ENCSR000BGD_1_m1	3.07	0.0792	POLR2A (directAnnotation).	2	65
taipale_RARA_full_RGGTCANNNARRGGTCA	3.06	0.0791	RARA (directAnnotation).	2	121
cisbp_M5695	3.06	0.0791	ONECUT1 (directAnnotation).	2	120
taipale_tf_pairs_ETV2_EOMES_RCCGANNNNNNNNNACACCTN_CAP_repr	3.06	0.079	EOMES; ETV2 (directAnnotation).	4	499
dbcordb_POLR2A_ENCSR000BIK_1_m	3.06	0.079	POLR2A	2	88
predrem_nrMotif1701	3.05	0.079		5	619
cisbp_M5769	3.05	0.0789	RARG (directAnnotation).	2	101
transfac_pro_M01332	3.05	0.0789	BARHL1 (directAnnotation).	3	364
transfac_pro_M08964	3.05	0.0789	RXRA (directAnnotation).	3	577
dbcordb_RAD21_ENCSR000EFJ_1_m1	3.05	0.0789	RAD21 (directAnnotation).	4	682
tiffin_TIFDMEM0000075	3.05	0.0788		2	120
transfac_pro_M03170	3.05	0.0788		2	63
predrem_nrMotif1571	3.04	0.0788		2	121
predrem_nrMotif503	3.04	0.0787		2	120
taipale_cyt_meth_ONECUT1_NTATTGATYN_eDBD_meth_repr	3.04	0.0786	ONECUT1 (directAnnotation).	2	94
homer_MTGATGCAAT_At4	3.04	0.0786	ATF4 (inferredBy_Orthology).	2	87
cisbp_M3315	3.03	0.0786	GATA1 (directAnnotation).	2	120
predrem_nrMotif2476	3.03	0.0786		2	120
predrem_nrMotif2148	3.03	0.0785		2	72
cisbp_M5763	3.03	0.0784	RARA (directAnnotation).	2	131
dbcordb_TRIM28_ENCSR000EVY_1_m	3.03	0.0784	TRIM28 (directAnnotation).	2	88
flyfactorsurvey_acj6_SOLEXA_5_FBgn0000028	3.03	0.0784	POU4F1 (inferredBy_Orthology).	2	70
taipale_RARG_full_RGGTCANNNARAGGTCA	3.03	0.0784	RARG (directAnnotation).	2	120
transfac_pro_M03177	3.03	0.0784		2	120
transfac_pro_M07315	3.02	0.0782	CEBPP (directAnnotation).	4	954
swissregulon_sacCer_UME6	3.02	0.0782		6	2276
elemento_CTCCTCCC	3.02	0.0782		2	82
transfac_pro_M01517	3.02	0.0782		4	954

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predrem_nrMotif1217	3.01	0.0781		2	133
taipale_cyt_meth_ONECUT3_NTATTGATY_N_eDBD_meth	3.01	0.0781	ONECUT3 (directAnnotation).	2	97
cisbp_M5743	3.01	0.0781	POU4F3 (directAnnotation).	2	124
elemento_AGGAGGA	3.01	0.0781		2	97
transfac_pro_M09264	3.01	0.078		2	90
cisbp_M2042	3.01	0.078	OTX2 (inferredBy_Orthology).	2	74
hocomoco_PO4F1_HUMAN.H11MO.0.D	3.01	0.078	POU4F1 (directAnnotation).	4	849
8 cell					
hocomoco_ZFX_HUMAN.H11MO.1.A	6.01	0.048	ZFX (directAnnotation).	158	3456
dbcordb_POLR2AphosphoS2_ENCSR000DYF_1_m12	5.62	0.046	POLR2A (directAnnotation).	99	1668
elemento_ATCCCAGCA	5.61	0.046		148	3343
hocomoco_ZN770_HUMAN.H11MO.0.C	5.14	0.0437	ZNF770 (directAnnotation).	121	2311
dbcordb_SREBF2_ENCSR000DYT_1_m	5.04	0.0432	SREBF2 (directAnnotation).	179	4182
elemento_CCAGCCTGG	4.62	0.0411		169	3550
taipale_tf_pairs_E2F1_EOMES_RGGTGTNNNGCGSNNTNNCRSNN_CAP	4.6	0.041	E2F1; EOMES (directAnnotation).	29	308
neph_UW.Motif.0022	4.59	0.041		176	3619
transfac_pro_M01588	4.57	0.0409	KLF4 (directAnnotation).	180	4532
dbcordb_ZNF384_ENCSR000EFP_1_m	4.56	0.0408	ZNF384 (directAnnotation).	172	3761
transfac_pro_M00482	4.53	0.0407	PITX2 (directAnnotation).	145	3138
neph_UW.Motif.0600	4.53	0.0406		39	526
hocomoco_ZN770_HUMAN.H11MO.1.C	4.5	0.0405	ZNF770 (directAnnotation).	130	2606
hdpi_ZNF503	4.47	0.0404	ZNF503 (directAnnotation).	141	3227
hdpi_MTHFD1	4.45	0.0403	MTHFD1	143	2862
c2h2_zfs_M0448	4.41	0.0401		110	1755
transfac_pro_M03878	4.4	0.04	HIVEP2 (directAnnotation).	181	4438
hdpi_NXPH3	4.36	0.0398	NXPH3 (directAnnotation).	105	2182
dbcordb_ZNF384_ENCSR000EFP_1_m	4.36	0.0398	ZNF384 (directAnnotation).	209	4905
hdpi_C9orf156	4.33	0.0396	TRMO (directAnnotation).	70	1075
hocomoco_TBX3_HUMAN.H11MO.0.C	4.32	0.0396	TBX3 (directAnnotation).	60	950
elemento_AATCCCAGC	4.3	0.0395		142	2744
hocomoco_SMAD3_HUMAN.H11MO.0.B	4.25	0.0393	SMAD3 (directAnnotation).	100	2112
transfac_pro_M03576	4.2	0.039	UBP1 (inferredBy_Orthology).	191	4571
transfac_public_M00008	4.14	0.0387	SP1 (directAnnotation).	167	4048
cisbp_M3919	4.14	0.0387	SP1 (directAnnotation).	26	275
transfac_pro_M01169	4.14	0.0387	IKZF1 (directAnnotation).	170	3712
hocomoco_KLF5_MOUSE.H11MO.0.A	4.12	0.0386	KLF5 (inferredBy_Orthology).	34	445
swissregulon_sacCer_ORC1	4.11	0.0386		128	2638
predrem_nrMotif992	4.09	0.0385		39	548
transfac_pro_M05845	4.05	0.0383	ZSCAN29 (directAnnotation).	110	2367
cisbp_M0365	4	0.038		204	4967
predrem_nrMotif1084	4	0.038		86	1643
predrem_nrMotif1872	3.98	0.038		158	3716
neph_UW.Motif.0090	3.98	0.0379		160	3728
cisbp_M6401	3.93	0.0377	OTX2 (directAnnotation).	157	3846
hocomoco_PAX5_HUMAN.H11MO.0.A	3.93	0.0377	PAX5 (directAnnotation).	207	4944

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neph_UW.Motif.0021	3.93	0.0377		188	4180
transfac_pro_M07266	3.92	0.0376	APEX1; EP300 (directAnnotation).	84	1788
neph_UW.Motif.0390	3.9	0.0375		106	2200
hdpi_SMAP1L	3.9	0.0375	SMAP2 (directAnnotation).	183	4364
swissregulon_hs_PITX1..3.p2	3.9	0.0375	PITX1; PITX2; PITX3 (directAnnotation).	177	4059
neph_UW.Motif.0015	3.89	0.0375		192	4533
transfac_pro_M07460	3.82	0.0372	KLF3 (directAnnotation).	43	623
elemento_CTGGGATTA	3.79	0.037		173	3690
neph_UW.Motif.0349	3.78	0.037		84	1490
dbcorrdb_IRF3_ENCSR000DZX_1_m4	3.78	0.0369	IRF3 (directAnnotation).	131	2958
scertf_pachkov.ORC1	3.76	0.0369		121	2542
yefasco_YML065W_1549	3.75	0.0368		159	3671
transfac_pro_M06210	3.72	0.0366	ZNF33A (directAnnotation).	36	586
dbcorrdb_POLR3A_ENCSR000DNU_1_m1	3.72	0.0366	POLR3A (directAnnotation).	217	4977
predrem_nrMotif233	3.71	0.0366		77	1473
hdpi_TRIM21	3.71	0.0366	TRIM21 (directAnnotation).	152	3451
transfac_pro_M04904	3.71	0.0366	POLR3A	92	1766
neph_UW.Motif.0066	3.7	0.0366		34	495
taipale_cyt_meth_KLF2_NRCCACRCCN_eDBD	3.68	0.0364	KLF2 (directAnnotation).	31	434
dbcorrdb_RAD21_ENCSR000EHX_1_m6	3.67	0.0364	RAD21 (directAnnotation).	101	2107
dbcorrdb_ZNF384_ENCSR000DYP_1_m	3.67	0.0364	ZNF384 (directAnnotation).	87	1385
dbcorrdb_SMARCA4_ENCSR000EZA_1_m9	3.66	0.0364	SMARCA4 (directAnnotation). SREBF1 (directAnnotation).	21	196
transfac_pro_M04632	3.65	0.0363	NR0B1 (inferredBy_Ontology).	54	992
elemento_AGGAGCG	3.65	0.0363		32	412
dbcorrdb_BDP1_ENCSR000DOK_1_m2	3.65	0.0363	BDP1 (directAnnotation).	178	4331
hocomoco_KLF4_HUMAN.H11MO.0.A	3.64	0.0363	KLF4 (directAnnotation).	150	3441
predrem_nrMotif29	3.63	0.0362		47	823
neph_UW.Motif.0176	3.6	0.036		140	3345
elemento_TCCCAGCAC	3.59	0.036		174	4101
yefasco_YML113W_1416	3.57	0.0359		60	925
neph_UW.Motif.0460	3.57	0.0359		191	4999
hdpi_AKR1A1	3.57	0.0359	AKR1A1 (directAnnotation).	99	2012
cisbp_M1377	3.56	0.0359		30	434
yefasco_YPL128C_2178	3.56	0.0359		29	427
hocomoco_KLF4_MOUSE.H11MO.0.A	3.56	0.0358	KLF4 (inferredBy_Ontology).	51	845
neph_UW.Motif.0173	3.54	0.0358		29	403
transfac_pro_M01721	3.52	0.0357	PURA (directAnnotation).	95	2016
transfac_pro_M03553	3.5	0.0356	KLF3 (directAnnotation).	47	770
tfdimers_MD00390	3.5	0.0356	CRX; NFIA; NFIC; RAX (directAnnotation).	80	1658
cisbp_M6421	3.48	0.0355	PLAG1 (directAnnotation).	24	271
fantom_motif148_NTCSYSTYT	3.48	0.0355		58	1073
dbcorrdb_POLR3A_ENCSR000DNU_1_m2	3.48	0.0355	POLR3A (directAnnotation).	126	2376
elemento_CCCAGCC	3.47	0.0354		172	4062
neph_UW.Motif.0568	3.47	0.0354		49	780

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transfac_pro_M00646	3.46	0.0354	HNF1B (directAnnotation).	151	3785
transfac_pro_M03814	3.46	0.0354	KLF5 (directAnnotation).	41	645
dbcorrdb_BRF1_ENCSR000DNW_1_m1	3.42	0.0352	BRF1 (directAnnotation).	195	4829
hdpi_H2AFY	3.4	0.0351	H2AFY (directAnnotation).	144	3076
predrem_nrMotif1918	3.38	0.035		30	443
cisbp_M1871	3.38	0.035	KLF4 (inferredBy_Ontology).	90	1815
transfac_pro_M02114	3.38	0.035	PITX2 (directAnnotation).	198	4941
dbcorrdb_NR3C1_ENCSR000BHE_1_m5	3.38	0.035	NR3C1 (directAnnotation).	43	737
cisbp_M5211	3.37	0.035	ZNF362; ZNF384 (inferredBy_Ontology).	170	4163
swissregulon_hs_KLF4.p3	3.37	0.0349	KLF4 (directAnnotation).	87	1707
hocomoco_PLAG1_HUMAN.H11MO.0.D	3.36	0.0349	PLAG1 (directAnnotation).	152	3856
dbcorrdb_MAFK_ENCSR000DYV_1_m3	3.36	0.0349	MAFK (directAnnotation).	171	4205
transfac_pro_M00706	3.35	0.0349	GTF2I (directAnnotation).	29	390
cisbp_M0442	3.35	0.0348	ZBTB3 (inferredBy_Ontology).	150	3215
tfdimers_MD00520	3.35	0.0348	MYCN; MZF1 (directAnnotation).	39	562
transfac_pro_M07602	3.35	0.0348	TFCP2 (directAnnotation).	176	4174
tfdimers_MD00537	3.34	0.0348	EP300; PURA (directAnnotation).	47	787
yetfasco_YDR146C_569	3.33	0.0347	GTF3A; ZXDA; ZXDB; ZXDC (inferredBy_Ontology).	137	3377
transfac_pro_M01646	3.32	0.0347	ZNF112; ZNF155; ZNF214; ZNF221; ZNF222; ZNF223; ZNF224; ZNF226; ZNF227; ZNF230; ZNF233; ZNF234; ZNF235; ZNF239; ZNF284; ZNF285; ZNF664 (inferredBy_Ontology).	142	3096
hdpi_FHL2	3.32	0.0347	FHL2 (directAnnotation).	29	435
cisbp_M6127	3.32	0.0347	KLF4 (inferredBy_Ontology).	96	2079
neph_UW.Motif.0012	3.3	0.0346		117	2415
jaspar_MA0402.1	3.29	0.0345	GTF3A; ZXDA; ZXDB; ZXDC (inferredBy_Ontology).	121	2907
neph_UW.Motif.0669	3.29	0.0345	ZNF112; ZNF155; ZNF214; ZNF221; ZNF222; ZNF223; ZNF224; ZNF226; ZNF227; ZNF230; ZNF233; ZNF234; ZNF235; ZNF239; ZNF284; ZNF285; ZNF664 (inferredBy_Ontology).	115	2118
jaspar_MA0285.1	3.28	0.0345	ZNF112; ZNF155; ZNF214; ZNF221; ZNF222; ZNF223; ZNF224; ZNF226; ZNF227; ZNF230; ZNF233; ZNF234; ZNF235; ZNF239; ZNF284; ZNF285; ZNF664 (inferredBy_Ontology).	185	4440
transfac_pro_M00323	3.28	0.0345		23	250
swissregulon_sacCer_YML081W	3.28	0.0345		37	636
fantom_motif63_GTNCCA	3.27	0.0344		33	484
hocomoco_RARG_HUMAN.H11MO.2.D	3.27	0.0344	RARG (directAnnotation).	70	1399
neph_UW.Motif.0142	3.27	0.0344		21	221
hdpi_NAP1L1	3.26	0.0344	NAP1L1 (directAnnotation).	183	4402
hdpi_SOCS4	3.26	0.0344	SOCS4 (directAnnotation).	35	562
transfac_pro_M04595	3.26	0.0344	SALL2 (directAnnotation).	93	2115
transfac_pro_M04859	3.26	0.0344	SMC3 (directAnnotation).	168	3985

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predrem_nrMotif12	3.25	0.0343		49	821
dbcorrdb_POLR3A_ENCSR000DNU_1_m3	3.25	0.0343	POLR3A (directAnnotation).	194	4498
elemento_CCCACCC	3.25	0.0343		19	206
hdpi_SEMA4A	3.24	0.0343	SEMA4A	149	3162
dbcorrdb_EZH2_ENCSR000ARH_1_m3	3.24	0.0343	EZH2 (directAnnotation).	38	606
neph_UW.Motif.0379	3.23	0.0343		141	2866
transfac_pro_M01168	3.22	0.0342	SREBF1; SREBF2 (directAnnotation).	164	4260
cisbp_M0543	3.22	0.0342		22	293
taipale_tf_pairs_GCM2_HES7_RTRNKGTTNNNGCACGYGNN_CAP_repr	3.22	0.0342	GCM2; HES7 (directAnnotation).	34	502
flyfactorsurvey_sqz_SANGER_5_FBgn0010768	3.22	0.0342	ZNF362; ZNF384 (inferredBy_Ontology). ZNF112; ZNF155; ZNF214; ZNF221; ZNF222; ZNF223; ZNF224; ZNF226; ZNF227; ZNF230; ZNF233; ZNF234; ZNF235; ZNF239; ZNF284; ZNF285; ZNF664 (inferredBy_Ontology).	136	3324
cisbp_M2090	3.21	0.0341	ZNF425 (directAnnotation).	186	4472
transfac_pro_M06352	3.21	0.0341	SMAD5 (directAnnotation).	194	4928
transfac_pro_M08829	3.21	0.0341	SREBF2 (directAnnotation).	204	4924
transfac_pro_M03852	3.2	0.0341	KLF4 (directAnnotation).	99	2109
cisbp_M6324	3.2	0.0341	SMAD4 (inferredBy_Ontology).	119	2672
transfac_public_M00506	3.19	0.0341	TCF12; TCF3; TCF4 (inferredBy_Ontology).	31	461
transfac_pro_M09021	3.19	0.034	BACH1; BACH2; MAF; MAFB; MAFF; MAFG;	64	1131
neph_UW.Motif.0496	3.19	0.034	MAFK; NFE2; NFE2L1; NFE2L2; NFE2L3; PURA (directAnnotation).	116	2627
elemento_GCCTCCC	3.19	0.034		139	2934
hocomoco_SMAD4_MOUSE.H11MO.0.A	3.19	0.034	ZNF335 (directAnnotation).	98	2199
cisbp_M5012	3.19	0.034	RELA (directAnnotation).	46	796
tfdimers_MD00162	3.18	0.034	SREBF2; WT1 (directAnnotation).	28	416
elemento_CCTGCCTC	3.18	0.034		185	4460
transfac_pro_M07056	3.17	0.0339	PLAG1 (directAnnotation).	95	1599
neph_UW.Motif.0487	3.15	0.0338	TFCP2 (directAnnotation).	38	612
dbcorrdb_CEBPZ_ENCSR000EDO_1_m	3.14	0.0338	CEBPZ (directAnnotation).	106	2260
transfac_pro_M07261	3.14	0.0338	KLF2 (directAnnotation).	38	616
hocomoco_ZN335_HUMAN.H11MO.1.A	3.14	0.0338		41	696
dbcorrdb_REL_A_ENCSR000EBM_1_m2	3.13	0.0338	ZNF335 (directAnnotation).	44	784
tfdimers_MD00443	3.13	0.0338	WT1 (directAnnotation).	45	791
transfac_pro_M01973	3.13	0.0337	MTF1; OVOL2 (directAnnotation).	22	285
transfac_pro_M03868	3.12	0.0337	KLF15 (directAnnotation).	115	2735
neph_UW.Motif.0067	3.11	0.0336		41	665
cisbp_M2376	3.1	0.0336		114	2504
cisbp_M0484	3.07	0.0335		172	4185
tfdimers_MD00366	3.07	0.0335	KLF15 (directAnnotation).	41	690
taipale_cyt_meth_KLF15_NCCACGCCCMYNeDBD	3.07	0.0334		25	327

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hdpi_CBX7	3.07	0.0334	CBX7 (directAnnotation).	33	540
hdpi_ZNF304	3.06	0.0334	ZNF304 (directAnnotation).	171	3968
hdpi_AFF4	3.06	0.0334	AFF4 (directAnnotation).	83	1742
taipale_tf_pairs_GCM1_NHLH1_NCAGCTG NNNNNNNNTRCGGG_CAP_repr	3.05	0.0334	GCM1; NHLH1 (directAnnotation).	23	284
taipale_cyt_meth_PITX2_NTAATCCN_eDB	3.05	0.0334	PITX2 (directAnnotation).	77	1588
transfac_pro_M01859	3.05	0.0333	TFAP2C (directAnnotation).	188	4772
hocomoco_OLIG2_HUMAN.H11MO.0.B	3.04	0.0333	OLIG2 (directAnnotation).	24	307
cisbp_M1396	3.04	0.0333		23	306
hdpi_RAB7A	3.04	0.0333	RAB7A (directAnnotation).	171	4028
elemento_CCCCCAGC	3.03	0.0333		49	852
dbcordb_CHD1_ENCSR000AQK_1_m1	3.03	0.0332	CHD1 (directAnnotation).	48	862
dbcordb_NFYB_ENCSR000DNR_1_m2	3.03	0.0332	NFYB (directAnnotation).	191	4658
			ZNF112; ZNF155; ZNF214; ZNF221; ZNF222; ZNF223; ZNF224; ZNF226; ZNF227;		
yetfasco_YNL027W_516	3.02	0.0332	ZNF230; ZNF233; ZNF234; ZNF235; ZNF239; ZNF284; ZNF285; ZNF664 (inferredBy Ortholog).	146	3174
			ZNF112; ZNF155; ZNF214; ZNF221; ZNF222; ZNF223; ZNF224; ZNF226; ZNF227;		
scertf_spivak.CRZ1	3	0.0331	ZNF230; ZNF233; ZNF234; ZNF235; ZNF239; ZNF284; ZNF285; ZNF664 (inferredBy Ortholog).	211	4758
transfac_pro_M01865	3	0.0331	KLF13 (directAnnotation).	29	446

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hocomoco_ZN770_HUMAN.H11MO.0.C	5	0.0328	ZNF770 (directAnnotation).	807	4996
hdpi_TAGSLN2	4.98	0.0328	TAGLN2 (directAnnotation).	792	4979
dbcordb_POLR2AphosphoS2_ENCSR000 DYF_1_m12	4.64	0.0317	POLR2A (directAnnotation).	750	4829
elemento_CTTGGGATTAA	4.61	0.0316		457	2656
c2h2_zfs_M0448	4.55	0.0314		677	3895
transfac_public_M00255	4.54	0.0314		220	1148
transfac_pro_M00482	4.49	0.0312	PITX2 (directAnnotation).	470	2697
swissregulon_hs_PITX1..3.p2	4.43	0.031	PITX1; PITX2; PITX3 (directAnnotation).	618	3780
hdpi_MTHFD1	4.4	0.0309	MTHFD1	830	4913
swissregulon_sacCer_ORC1	4.34	0.0307		703	4624
hocomoco_ZFX_HUMAN.H11MO.1.A	4.32	0.0306	ZFX (directAnnotation).	705	4198
elemento_CCCAGCC	4.29	0.0305		562	3535
neph_UW.Motif.0022	4.28	0.0305		688	4086
hdpi_SMPX	4.24	0.0304	SMPX (directAnnotation).	513	3285
hocomoco_ZN121_HUMAN.H11MO.0.C	4.22	0.0303	ZNF121 (directAnnotation).	756	4991
scertf_pachkov.ORC1	4.21	0.0303		537	3328
cisbp_M0885	4.21	0.0303		646	3984
yetfasco_YML065W_1549	4.21	0.0303		546	3400
cisbp_M5785	4.19	0.0302	RHOXF1	489	2994
hdpi_NAP1L1	4.19	0.0302	NAP1L1 (directAnnotation).	734	4430
neph_UW.Motif.0669	4.15	0.0301		745	4820
hocomoco_PAX5_HUMAN.H11MO.0.A	4.15	0.0301	PAX5 (directAnnotation).	776	4981

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neph_UW.Motif.0390	4.13	0.03		425	2658
dbcorrdb_ZNF384_ENCSR000EFP_1_m	4.11	0.03	ZNF384 (directAnnotation).	759	4914
elemento_TGAGCCAC	4.09	0.0299		731	4998
dbcorrdb_POLR3A_ENCSR000DNU_1_m1	4.06	0.0298	POLR3A (directAnnotation).	801	4994
hdpi_NXPH3	4.05	0.0297	NXPH3 (directAnnotation).	722	4354
hdpi_C9orf156	4.01	0.0296	TRMO (directAnnotation).	792	4995
elemento_ATCCCAGCA	4.01	0.0296		397	2250
neph_UW.Motif.0092	4.01	0.0296		754	4859
transfac_pro_M08829	4	0.0296	SMAD5 (directAnnotation).	777	4748
cisbp_M0484	3.99	0.0296		740	4715
jaspar_MA0118.1	3.97	0.0295		263	1567
elemento_AATCCCAGC	3.97	0.0295		588	3581
yefasco_YDR043C_2148	3.96	0.0295		219	1187
taipale_RHOXF1_full_NTRAKCCN	3.95	0.0294	RHOXF1	509	3124
jaspar_MA0583.1	3.95	0.0294		785	4990
cisbp_M3926	3.94	0.0294	SP1 (directAnnotation).	628	4111
dbcorrdb_ZNF384_ENCSR000EFP_1_m	3.93	0.0294	ZNF384 (directAnnotation).	676	3976
cisbp_M2376	3.93	0.0294		769	4915
transfac_pro_M04983	3.93	0.0293		559	3631
transfac_pro_M01798	3.93	0.0293	POLR3A	761	4787
transfac_pro_M02114	3.92	0.0293	PITX2 (directAnnotation).	734	4947
hdpi_TRIM21	3.91	0.0293	TRIM21 (directAnnotation).	769	4755
cisbp_M0505	3.91	0.0293		530	3528
hdpi_PIR	3.9	0.0293	PIR (directAnnotation).	787	4999
transfac_public_M00196	3.9	0.0292	SP1 (directAnnotation).	630	4138
hdpi_SCC-112	3.89	0.0292	PDS5A (directAnnotation).	588	3817
jaspar_MA0103.2	3.89	0.0292	ZEB1 (directAnnotation).	86	373
transfac_pro_M03814	3.88	0.0292	KLF5 (directAnnotation).	133	651
cisbp_M1434	3.88	0.0292	NR2F6 (directAnnotation).	182	979
cisbp_M1939	3.88	0.0292		193	1083
transfac_pro_M00646	3.86	0.0291	HNF1B (directAnnotation).	598	3766
hdpi_RAB7A	3.85	0.0291	RAB7A (directAnnotation).	776	4977
elemento_CCCCCAGC	3.85	0.0291		663	4552
hdpi_SMAP1L	3.85	0.0291	SMAP2 (directAnnotation).	800	4969
dbcorrdb_POLR3A_ENCSR000DNU_1_m3	3.84	0.0291	POLR3A (directAnnotation).	732	4767
taipale_cyt_meth_ZNF787_TGCCTCMGTTT_MCCY_FL	3.83	0.029	ZNF787 (directAnnotation).	707	4935
dbcorrdb_SREBF2_ENCSR000DYT_1_m	3.82	0.029	SREBF2 (directAnnotation).	741	4926
transfac_pro_M00932	3.82	0.029	SP1; SP2; SP3; SP4 (directAnnotation).	327	1874
cisbp_M1926	3.8	0.0289	ZEB1 (directAnnotation).	128	629
neph_UW.Motif.0238	3.8	0.0289		635	4060
cisbp_M5783	3.8	0.0289	RHOXF1	440	2568
tfdimers_MD00467	3.79	0.0289	ARID3A; PBX1 (directAnnotation).	380	2222
flyfactorsurvey(CG5669_SANGER_10_FBg_n0039169	3.79	0.0289	SP1; SP2; SP3; SP4 (inferredBy_Ontology).	558	3771
transfac_pro_M07261	3.78	0.0289	KLF2 (directAnnotation).	749	4949
factorbook_SP1	3.77	0.0288	SP1; SP2 (directAnnotation).	480	2844
neph_UW.Motif.0116	3.75	0.0288		665	4515

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transfac_pro_M01100	3.75	0.0288	ZBTB7A (directAnnotation).	409	2575
factorbook_UA12	3.74	0.0287		70	287
homer_GGCCCGCCCC_Sp1	3.73	0.0287		623	4061
elemento_CCAGCCTGG	3.73	0.0287		654	3869
transfac_pro_M03878	3.72	0.0287	HIVEP2 (directAnnotation).	725	4751
cisbp_M4870	3.71	0.0287	SP1; SP2; SP3; SP4 (inferredBy_Ontology).	441	2878
neph_UW.Motif.0015	3.68	0.0285		724	4706
dbcordb_ZNF384_ENCSR000DYP_1_m	3.66	0.0285	ZNF384 (directAnnotation).	556	3394
hocomoco_ZN770_HUMAN.H11MO.1.C	3.66	0.0285	ZNF770 (directAnnotation).	768	4940
taipale_RHOXF1_DBDB_NTRAKCCN	3.64	0.0284	RHOXF1	464	2740
transfac_pro_M07615	3.63	0.0284	SP3 (directAnnotation).	650	4485
hocomoco_SP1_HUMAN.H11MO.1.A	3.62	0.0284	SP1 (directAnnotation).	711	4747
cisbp_M0365	3.62	0.0283		771	4798
cisbp_M1495	3.62	0.0283		210	1179
hdpi_AKR1A1	3.61	0.0283	AKR1A1 (directAnnotation).	770	4993
cisbp_M6219	3.61	0.0283	ESR2 (directAnnotation).	105	485
elemento_CCCCCAGG	3.61	0.0283		240	1287
neph_UW.Motif.0327	3.59	0.0283		712	4752
dbcordb_ZEB1_ENCSR000BND_1_m1	3.59	0.0283	ZEB1 (directAnnotation).	257	1543
elemento_CTGCCCC	3.59	0.0283		149	792
transfac_pro_M07921	3.57	0.0282	ZNF358; ZNF768 (inferredBy_Ontology).	455	2738
transfac_pro_M06191	3.57	0.0282	ZXDB (directAnnotation).	109	494
cisbp_M5210	3.57	0.0282	SP6; SP7; SP8; SP9 (inferredBy_Ontology).	434	2643
dbcordb_POLR3A_ENCSR000DNU_1_m2	3.56	0.0282	POLR3A (directAnnotation).	747	4702
dbcordb_GTF3C2_ENCSR000DOD_1_m1	3.56	0.0281	GTF3C2 (directAnnotation).	744	4584
transfac_pro_M06190	3.55	0.0281	ZXDA (directAnnotation).	115	534
transfac_pro_M09005	3.54	0.0281	SP4	609	4148
hdpi_ZNF503	3.54	0.0281	ZNF503 (directAnnotation).	649	3783
transfac_pro_M03790	3.52	0.028	NR1H4 (directAnnotation).	149	754
cisbp_M0470	3.52	0.028		174	943
transfac_pro_M00720	3.51	0.028		777	4988
dbcordb_IRF3_ENCSR000DZX_1_m4	3.51	0.028	IRF3 (directAnnotation).	683	4482
dbcordb_ZNF384_ENCSR000EFP_1_m	3.51	0.028	ZNF384 (directAnnotation).	599	3740
cisbp_M4483	3.5	0.028	ZEB1 (directAnnotation).	129	625
flyfactorsurvey_Sp1_SOLEXA_2.5_FBgn0020378	3.5	0.028	SP6; SP7; SP8; SP9 (inferredBy_Ontology).	401	2408
hdpi_CBX7	3.49	0.0279	CBX7 (directAnnotation).	339	2020
transfac_pro_M01161	3.49	0.0279		322	1866
			NR1H2; NR1H3; NR1I2; NR1I3; NR2F1; NR2F2;		
transfac_pro_M07280	3.49	0.0279	RARA; RARB; RARG; RXRA; RXRB (directAnnotation).	132	685
elemento_CCCTGCC	3.48	0.0279		552	3767
transfac_pro_M04854	3.47	0.0279	SMC3 (directAnnotation).	658	4468
c2h2_zfs_M3835	3.47	0.0279	ZBTB7A (directAnnotation).	325	1916
predrem_nrMotif120	3.47	0.0278		488	3283
c2h2_zfs_M3425	3.46	0.0278		227	1302

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neph_UW.Motif.0658	3.45	0.0278		497	3308
factorbook_UA13	3.45	0.0278	ZNF112; ZNF155; ZNF214; ZNF221; ZNF222; ZNF223; ZNF224; ZNF226; ZNF227; ZNF230; ZNF233; ZNF234; ZNF235; ZNF239; ZNF284; ZNF285; ZNF664 (inferredBy Orthology).	589	3939
scertf_spivak.CRZ1	3.45	0.0278		727	4603
hdpi_MXD4	3.44	0.0278	MXD4 (directAnnotation).	166	872
transfac_pro_M07486	3.44	0.0277		189	976
factorbook_UA3	3.43	0.0277	ZBTB7A (directAnnotation).	305	1739
transfac_pro_M04859	3.43	0.0277	SMC3 (directAnnotation).	733	4848
transfac_pro_M01177	3.43	0.0277	SREBF2 (directAnnotation).	748	4981
swissregulon_hs_SP1.p2	3.42	0.0277	SP1 (directAnnotation).	568	3709
neph_UW.Motif.0021	3.42	0.0277		796	4986
neph_UW.Motif.0023	3.42	0.0277		543	3494
elemento_CCAGGCC	3.41	0.0277		477	2983
transfac_pro_M01169	3.41	0.0277	IKZF1 (directAnnotation).	753	4836
yetfasco_YMR182C_531	3.41	0.0277		167	918
cisbp_M6325	3.41	0.0277	KLF6 (directAnnotation).	238	1380
fantom_motif169_GCCTGGCC	3.4	0.0276		717	4803
hdpi_HLCS	3.4	0.0276	HLCS (directAnnotation).	730	4999
taipale_cyt_meth_ZNF787_TGCCTCMGTTT	3.39	0.0276	ZNF787 (directAnnotation).	133	683
MCCY_FL_meth_repr					
swissregulon_sacCer_RGM1	3.38	0.0276		171	942
hdpi_AFF4	3.38	0.0276	AFF4 (directAnnotation).	757	4898
transfac_pro_M04904	3.38	0.0275	POLR3A	714	4874
dbcordb_IRF1_ENCSR000EGT_1_m1	3.37	0.0275	IRF1 (directAnnotation).	632	4029
transfac_pro_M01033	3.37	0.0275	HNF4A (directAnnotation). GTF3A; ZXDA; ZXDB;	456	2964
yetfasco_YLR131C_1332	3.37	0.0275	ZXDC (inferredBy_Ontology).	706	4788
tfdimers_MD00116	3.37	0.0275	CRX; SPZ1 (directAnnotation).	657	4354
c2h2_zfs_M0442	3.35	0.0275		738	4919
neph_UW.Motif.0090	3.35	0.0275		780	4993
neph_UW.Motif.0443	3.35	0.0275		573	3637
predrem_nrMotif55	3.34	0.0274		221	1182
hocomoco_ZFX_MOUSE.H11MO.1.B	3.34	0.0274	ZFY	401	2372
dbcordb_SP1_ENCSR000BHK_1_m2	3.34	0.0274	SP1 (directAnnotation).	489	3098
transfac_public_M00008	3.34	0.0274	SP1 (directAnnotation).	651	4231
yetfasco_YML113W_1416	3.34	0.0274		641	4321
cisbp_M0394	3.34	0.0274	PLAGL1 (inferredBy_Ontology).	717	4986
hocomoco_SALL1_MOUSE.H11MO.0.D	3.33	0.0274		730	4536
hdpi_PIK3C3	3.33	0.0274	PIK3C3 (directAnnotation).	741	4991
transfac_pro_M01721	3.33	0.0274	PURA (directAnnotation).	723	4954
hocomoco_COT1_HUMAN.H11MO.1.C	3.33	0.0274	NR2F1 (directAnnotation).	209	1078
hocomoco_SMAD3_HUMAN.H11MO.0.B	3.33	0.0274	SMAD3 (directAnnotation).	631	4241
taipale_cyt_meth_PITX2_NTAATCCN_eDB	3.32	0.0274	PITX2 (directAnnotation).	544	3655
dbcordb_CUX1_ENCSR000EFO_1_m5	3.32	0.0274	CUX1 (directAnnotation).	221	1264
hocomoco_PITX2_HUMAN.H11MO.0.D	3.31	0.0273	PITX2 (directAnnotation).	341	2053

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transfac_public_M00048	3.31	0.0273		345	2058
yefasco_YOL067C_1494	3.31	0.0273		88	434
transfac_public_M00506	3.3	0.0273		438	2821
elemento_GGGACCC	3.29	0.0273		351	2245
hocomoco_RARA_MOUSE.H11MO.3.A	3.28	0.0272	RARA (inferredBy_Ontology).	233	1358
taipale_tf_pairs_E2F1_EOMES_RGGTGTNNNGCGSNNTNNCRSNN_CAP	3.28	0.0272	E2F1; EOMES (directAnnotation).	709	4993
neph_UW.Motif.0012	3.28	0.0272		770	4835
transfac_pro_M03576	3.28	0.0272	UBP1 (inferredBy_Ontology).	661	4096
hdpi_DUS3L	3.28	0.0272	DUS3L (directAnnotation).	655	4467
elemento_CAGGCC	3.27	0.0272		458	2989
predrem_nrMotif1063	3.27	0.0272		261	1473
cisbp_M6479	3.27	0.0272	SP1 (directAnnotation).	410	2725
cisbp_M1452	3.26	0.0272	RORA (inferredBy_Ontology).	179	1030
cisbp_M0956	3.26	0.0272	PITX3 (inferredBy_Ontology).	241	1329
hdpi_H2AFY	3.26	0.0272	H2AFY (directAnnotation).	483	3156
cisbp_M6127	3.24	0.0271	KLF4 (inferredBy_Ontology).	299	1857
hdpi_UPG2	3.24	0.0271	UPG2 (directAnnotation).	680	4459
transfac_pro_M07056	3.24	0.0271	PITX2 (directAnnotation).	644	4245
hocomoco_HTF4_HUMAN.H11MO.0.A	3.23	0.0271	TCF12 (directAnnotation).	123	648
cisbp_M6480	3.23	0.0271	SP1 (directAnnotation).	618	4274
dbcrrdb_JUND_ENCSR000DYS_1_m1	3.23	0.0271	JUND (directAnnotation).	122	648
			GTF3A; ZXDA; ZXDB;		
transfac_pro_M01616	3.23	0.0271	ZXDC (inferredBy_Ontology).	725	4995
hocomoco_SP2_HUMAN.H11MO.1.B	3.23	0.0271	SP2 (directAnnotation).	561	3705
transfac_pro_M08955	3.23	0.0271	NR1H4 (directAnnotation).	561	3794
hdpi_FGF19	3.21	0.027	FGF19 (directAnnotation).	654	4178
dbcrrdb_CEBPZ_ENCSR000EDO_1_m	3.21	0.027	CEBPZ (directAnnotation).	729	4912
elemento_CCTGCC	3.21	0.027		531	3484
predrem_nrMotif1180	3.21	0.027		100	486
predrem_nrMotif2511	3.21	0.027		215	1194
transfac_pro_M00931	3.21	0.027	SP1; SP3; SP4 (directAnnotation).	672	4679
cisbp_M4871	3.21	0.027	SP1; SP2; SP3; SP4 (inferredBy_Ontology).	650	4320
transfac_pro_M07348	3.2	0.027	TFAP2A (directAnnotation).	110	548
			GTF3A; ZXDA; ZXDB;		
jaspar_MA0267.1	3.19	0.0269	ZXDC (inferredBy_Ontology).	702	4826
elemento_GCCTCCC	3.19	0.0269		629	4177
transfac_pro_M07371	3.19	0.0269	ZEB1 (directAnnotation).	638	4547
			GTF3A; ZXDA; ZXDB;		
cisbp_M2072	3.18	0.0269	ZXDC (inferredBy_Ontology).	704	4855
hocomoco_SP1_MOUSE.H11MO.1.A	3.18	0.0269	SP1	80	354
flyfactorsurvey_lola-PL_SANGER_2.5_FBgn0005630	3.18	0.0269		705	4860
hdpi_JARID1A	3.18	0.0269	KDM5A (directAnnotation).	627	4064
transfac_pro_M05775	3.18	0.0269	ZXDC (directAnnotation).	282	1696

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flyfactorsurvey__CG5669_SOLEXA_5_FBgn0039169	3.17	0.0269	SP1; SP2; SP3; SP4 (inferredBy_Ontology).	658	4422
taipale_cyt_meth__SP9_NCCACGCCCMYNeDBD_meth	3.17	0.0269	SP9 (directAnnotation).	401	2639
hocomoco__SP3_HUMAN.H11MO.0.B	3.17	0.0269	SP3 (directAnnotation).	677	4856
transfac_pro__M01168	3.17	0.0269	SREBF1; SREBF2 (directAnnotation).	648	4345
transfac_pro__M01859	3.16	0.0268	TFAP2C (directAnnotation).	745	4772
dbcorrdb__RAD21_ENCSR000EHX_1_m6	3.16	0.0268	RAD21 (directAnnotation).	667	4390
transfac_pro__M07063	3.15	0.0268	SP1 (directAnnotation).	503	3303
transfac_pro__M07266	3.15	0.0268	APEX1; EP300 (directAnnotation).	701	4799
yetfasco__YBL103C_1446	3.14	0.0268		71	323
swissregulon__sacCer__SWI5	3.14	0.0268	GTF3A; ZXDA; ZXDB; ZXDC (inferredBy_Ontology).	744	4992
cisbp__M6482	3.14	0.0268	SP3 (directAnnotation).	560	3880
hdpi__UBB	3.14	0.0268	UBB (directAnnotation).	605	3924
transfac_pro__M07395	3.13	0.0268	SP1 (directAnnotation).	613	4175
cisbp__M2399	3.13	0.0267		331	1981
hdpi__GTF3C5	3.13	0.0267	GTF3C5 (directAnnotation).	104	541
transfac_pro__M07317	3.13	0.0267	CTBP1 (directAnnotation).	740	4816
hdpi__TOB2	3.13	0.0267	TOB2 (directAnnotation).	500	3134
neph__UW.Motif.0523	3.12	0.0267		144	752
transfac_pro__M04924	3.11	0.0267	EBF1 (directAnnotation).	667	4383
dbcorrdb__PBX3_ENCSR000BGR_1_m3	3.1	0.0267	PBX3 (directAnnotation).	667	4492
dbcorrdb__POLR3G_ENCSR000EHQ_1_m4	3.1	0.0267	POLR3G (directAnnotation).	661	4340
neph__UW.Motif.0169	3.1	0.0267		664	4403
cisbp__M2090	3.1	0.0266	ZNF112; ZNF155; ZNF214; ZNF221; ZNF222; ZNF223; ZNF224; ZNF226; ZNF227; ZNF230; ZNF233; ZNF234; ZNF235; ZNF239; ZNF284; ZNF285; ZNF664 (inferredBy_Ontology).	460	2826
cisbp__M4839	3.09	0.0266	KLF17; KLF18 (inferredBy_Ontology).	677	4653
cisbp__M0207	3.08	0.0266	TCF12 (inferredBy_Ontology).	99	501
flyfactorsurvey__CG3065_F1-5_SOLEXA_2.5_FBgn0034946	3.08	0.0266	KLF17; KLF18 (inferredBy_Ontology).	610	4089
taipale_cyt_meth__SP8_NCCACGCCCMYNeDBD_meth	3.07	0.0266	SP8 (directAnnotation).	448	2986
transfac_pro__M07628	3.07	0.0266	TFAP2A; TFAP2B; TFAP2C; TFAP2D; TFAP2E	97	500
cisbp__M5923	3.07	0.0266	TFAP2C (directAnnotation). ZNF112; ZNF155; ZNF214; ZNF221; ZNF222; ZNF223; ZNF224; ZNF226; ZNF227; ZNF230; ZNF233; ZNF234; ZNF235; ZNF239; ZNF284; ZNF285; ZNF664 (inferredBy_Ontology).	95	485
jaspar__MA0285.1	3.07	0.0266	ZNF112; ZNF155; ZNF214; ZNF221; ZNF222; ZNF223; ZNF224; ZNF226; ZNF227; ZNF230; ZNF233; ZNF234; ZNF235; ZNF239; ZNF284; ZNF285; ZNF664 (inferredBy_Ontology).	427	2581
cisbp__M6488	3.07	0.0265	SREBF2 (directAnnotation).	398	2544
predrem__nrMotif1427	3.07	0.0265		119	640

Supplementary Table S6 (continued)

taipale_cyt_meth__RHOXF1_NGGATCAN_F_L_repr	3.06	0.0265	RHOXF1 (directAnnotation).	666	4383
neph__UW.Motif.0176	3.06	0.0265		196	1138
cisbp__M0082	3.06	0.0265	TFAP2A (inferredBy_Orthology). EGR1; EGR2; EGR3;	109	564
jaspar__MA0337.1	3.05	0.0265	EGR4; WT1 (inferredBy_Orthology).	73	340
taipale_cyt_meth__KLF15_RCCACGCCMY_N_eDBD_meth	3.05	0.0265	KLF15 (directAnnotation).	227	1349
elemento__TGGGGGC	3.05	0.0265		97	486
transfac_pro__M08872	3.05	0.0265	BHLHE40; BHLHE41 (directAnnotation).	390	2453
cisbp__M0406	3.04	0.0265	ZBTB7B (inferredBy_Orthology). SMARCA4	278	1725
dbcordb__SMARCA4__ENCSR000EZC_1_m9	3.04	0.0265	(directAnnotation).	364	2192
dbcordb__SP1__ENCSR000BKO_1_m2	3.04	0.0265	SP1 (directAnnotation). EGR1; EGR2; EGR3;	372	2445
transfac_pro__M01961	3.04	0.0264	EGR4; WT1 (inferredBy_Orthology).	73	340
transfac_pro__M04931	3.03	0.0264	TCF12 (directAnnotation).	647	4067
hocomoco__HTF4_MOUSE.H11MO.0.A	3.03	0.0264	TCF12 (inferredBy_Orthology).	587	4091
transfac_pro__M00915	3.03	0.0264	TFAP2A; TFAP2B; TFAP2C (directAnnotation).	77	375
cisbp__M2786	3.03	0.0264		500	3386
transfac_pro__M01048	3.02	0.0264		353	2287
cisbp__M6409	3.02	0.0264	PAX5 (directAnnotation).	424	2771
hocomoco__COT1_HUMAN.H11MO.0.C	3.02	0.0264	NR2F1 (directAnnotation).	157	787
elemento__CCTGCCTC	3.02	0.0264		671	4457
			ZNF112; ZNF155; ZNF214; ZNF221; ZNF222; ZNF223; ZNF224; ZNF226; ZNF227; ZNF230; ZNF233; ZNF234; ZNF235; ZNF239; ZNF284; ZNF285; ZNF664		
transfac_pro__M01646	3.02	0.0264	(inferredBy_Orthology).	544	3516
transfac_pro__M03868	3.01	0.0264	TCFP2 (directAnnotation).	692	4766
transfac_pro__M02111	3.01	0.0264	RARB (directAnnotation).	107	576
hocomoco__SRBP2_HUMAN.H11MO.0.B	3.01	0.0264	SREBF2 (directAnnotation).	427	2756
hdpi__ZNF313	3.01	0.0263	RNF114 (directAnnotation).	206	1166
yetfasco__YBR066C_1383	3.01	0.0263		135	702
transfac_public__M00009	3	0.0263		166	965
dbcordb__NFYB__ENCSR000DNR_1_m2	3	0.0263	NFYB (directAnnotation).	696	4754
transfac_pro__M03852	3	0.0263	SREBF2 (directAnnotation).	629	4334

Transcription factor analysis was performed via R-package 'RcisTarget'. Motifs with a NES over 3.0 were retained.
 ICM, inner cell mass; NES, normalized enrichment score; TF, transcription factor; AUC, area under the curve.

Supplementary Table S7. Literature retrieval results for enzymes/proteins that were potentially involved in regulating H3K4me3

Gene	Synonyms	Protein	Source (PMID)
<i>ADNP</i>	<i>ADNP1, KIAA0784</i>	Activity dependent neuroprotector homeobox	32714933
<i>ARNTL</i>	<i>bHLHe5, BMAL1, JAP3, MOP3, PASD3</i>	Aryl hydrocarbon receptor nuclear translocator like	27055591
<i>ASH1L</i>	<i>ASH1, ASH1L1, huASH1, KMT2H</i>	ASH1 like histone lysine methyltransferase	29109511; 20422712
<i>ASH2L</i>	<i>ASH2, ASH2L1, ASH2L2, Bre2</i>	ASH2 like histone lysine methyltransferase complex subunit	32160530; 18495928; 32279431; 18026121; 27239938; 24715476; 29498679; 31165508; 29871872
<i>ASXL1</i>	<i>KIAA0978</i>	Additional sex combs like 1, transcriptional regulator	30266822; 24255920
<i>ATXN1</i>	<i>ATX1, D6S504E, SCA1</i>	Ataxin 1	20967218; 30150325
<i>BCOR</i>	<i>FLJ20285, KIAA1575</i>	BCL6 corepressor	31334109
<i>BMI1</i>	<i>PCGF4, RNF51</i>	BMI1 proto-oncogene, polycomb ring finger	26942853
<i>CBL</i>	<i>c-Cbl, CBL2, RNF55</i>	Cbl proto-oncogene	31002461
<i>CBX8</i>	<i>HPC3, PC3, RC1</i>	Chromobox 8	27346354
<i>CCL1</i>	<i>I-309, P500, SCYA1, SISe, TCA3</i>	C-C motif chemokine ligand 1	28119673
<i>CCNY</i>	<i>C10orf9, CBCP1, CFP1</i>	Cyclin Y	27590438; 30941832
<i>CDC73</i>	<i>C1orf28, FIHP, HRPT1, HRPT2, parafibromin</i>	Cell division cycle 73	29871872
<i>CTR9</i>	<i>KIAA0155, p150TSP, SH2BP1, TSBP</i>	CTR9 homolog, Paf1/RNA polymerase II complex component	27520958
<i>CUL4A</i>	-	Cullin 4A	24305877; 24360965
<i>CUL4B</i>	-	Cullin 4B	21816345
<i>CXXC1</i>	<i>CFP1, CGBP, hCGBP, HsT2645, PCCX1, PHF18, SPP1, ZCGPC1</i>	CXXC finger protein 1	27210293; 31633019; 26352678
<i>DET1</i>	<i>FLJ10103</i>	DET1, COP1 ubiquitin ligase partner	32414897
<i>DNMT1</i>	<i>CXXC9, DNMT, MCMT</i>	DNA methyltransferase 1	32358021
<i>DNMT3A</i>	-	DNA methyltransferase 3 alpha	29323282
<i>DNMT3B</i>	-	DNA methyltransferase 3 beta	29323282
<i>DNMT3L</i>	<i>MGC1090</i>	DNA methyltransferase 3 like	26795243
<i>DPY30</i>	<i>Cps25, HDPY-30, Saf19</i>	Dpy-30, histone methyltransferase complex regulatory subunit	23872946; 29498679; 21335234
<i>EPB41L4A</i>	<i>NBL4</i>	Erythrocyte membrane protein band 4.1 like 4A	31671345
<i>ESR2</i>	<i>ER-beta, Erb, NR3A2</i>	Estrogen receptor 2	28577282
<i>FBXO25</i>	<i>FBX25</i>	F-box protein 25	31827076
<i>HBB</i>	<i>beta-globin, CD113t-C</i>	Hemoglobin subunit beta	26809286
<i>HIRA</i>	<i>DGCR1, TUP1, TUPLE1</i>	Histone cell cycle regulator	28515277
<i>IL13</i>	<i>ALRH, BHR1, IL-13, MGC116786, MGC116788, MGC116789, P600</i>	Interleukin 13	29386911
<i>IL6</i>	<i>BSF2, HGF, HSF, IFNB2, IL-6</i>	Interleukin 6	31633019
<i>ISL1</i>	<i>Isl-1, ISLET1</i>	ISL LIM homeobox 1	30674889; 31186351

Supplementary Table S7 (continued)

<i>KAT8</i>	<i>FLJ14040, hMOF, MOF, MYST1, ZC2HC8</i>	Lysine acetyltransferase 8	26091365
<i>KDM1A</i>	<i>AOF2, BHC110, KDM1, KIAA0601, LSD1</i>	Lysine demethylase 1A	24495580; 30105631; 22067449; 16987819; 29156705
<i>KDM2A</i>	<i>CXXC8, DKFZP434M1735, FBL11, FBL7, FBXL11, FLJ00115, JHDM1A, KIAA1004, LILINA</i>	Lysine demethylase 2A	31172793
<i>KDM2B</i>	<i>CXXC2, Fbl10, FBXL10, JHDM1B, PCCX2</i>	Lysine demethylase 2B	31197256; 30060056; 30210666; 28706445; 30233643; 31041569; 22825849
<i>KDM3A</i>	<i>JHMD2A, JMJD1, JMJD1A, KIAA0742, TSGA</i>	Lysine demethylase 3A	28440295; 28734980
<i>KDM3B</i>	<i>C5orf7, JMJD1B, KIAA1082, NET22</i>	Lysine demethylase 3B	28440295
<i>KDM5A</i>	<i>JARID1A, RBBP2</i>	Lysine demethylase 5A	20406991; 24442343; 23884959; 27253695; 25673502; 27512956; 25686748; 31985200; 32208897; 33010254; 31061100; 28572115; 33087165; 27899593; 29764755; 31289306; 24619213; 18483221; 29059406
<i>KDM5B</i>	<i>CT31, JARID1B, PLU-1, PPP1R98, RBBP2H1A</i>	Lysine demethylase 5B	23884959; 25909289; 31152465; 21821892; 25596733; 23408432; 26739753; 31914649; 30448242; 27626382; 33160990; 28827149; 32868382; 30940185; 24100015; 28402433; 24495580; 21448134; 24412361; 22371483; 31289306; 22420752; 23637629; 22020125; 21369698; 17320160
<i>KDM5C</i>	<i>DXS1272E, JARID1C, MRX13, SMCX, XE169</i>	Lysine demethylase 5C	18697827; 21725364; 27498878; 17320160; 27058665; 28630052; 33042830; 26804915; 31334109; 24561620; 24183790; 31691806; 31289306; 32732223; 23545502; 23872847
<i>KDM5D</i>	<i>HY, HYA, JARID1D, KIAA0234, SMCY</i>	Lysine demethylase 5D	17351630; 31289306; 30826357; 29863497; 24561620; 32732223; 17320160
<i>KDM6A</i>	<i>UTX</i>	Lysine demethylase 6A	30872525; 32879445; 32732223
<i>KLF1</i>	<i>EKLF</i>	Kruppel like factor 1	31601799; 21610079
<i>KMT2A</i>	<i>ALL-1, CXXC7, HRX, HTRX1, MLL, MLL1A, TRX1</i>	Lysine methyltransferase 2A	21335234; 24550525; 26149390; 20422712; 29386911; 25457206; 30753586; 24183790; 22279536; 26352678; 31551408
<i>KMT2B</i>	<i>CXXC10, HRX2, KIAA0304, MLL1B, MLL2, MLL4, TRX2, WBP7</i>	Lysine methyltransferase 2B	32879445; 24619213; 30753586; 22279536; 20433758; 29036642; 17178841; 32393859; 18495928; 17166833; 30753586
<i>KMT2C</i>	<i>HALR, KIAA1506, MLL3</i>	Lysine methyltransferase 2C	26489893; 30753586; 22279536; 27926873
<i>KMT2D</i>	<i>ALR, CAGL114, MLL2, MLL4, TNRC21</i>	Lysine methyltransferase 2D	31334109; 29861161
<i>KMT2E</i>	<i>HDCMC04P, MLL5</i>	Lysine methyltransferase 2E	23629655; 33824267; 24130829; 32509400
<i>LMNA</i>	<i>CMD1A, HGPS, LGMD1B, LMN1, LMNL1, MADA, PRO1</i>	Lamin A/C	31912614
<i>LOXL2</i>	<i>LOR, WS9-14</i>	Lysyl oxidase like 2	29339785
<i>MEF2C</i>	-	Myocyte enhancer factor 2C	27239938
<i>MEN1</i>	-	Menin 1	25537453
<i>MKL1</i>	<i>BSAC, KIAA1438, MAL, MKL, MRTF-A</i>	Megakaryoblastic leukemia (translocation) 1	28298643
<i>MORF4L1</i>	<i>Eaf3, HsT17725, MEAF3, MORFRG15, MRG15</i>	Mortality factor 4 like 1	21448134
<i>MYC</i>	<i>bHLHe39, c-Myc, MYCC</i>	MYC proto-oncogene, bHLH transcription factor	22371483; 19915707
<i>NFE2L2</i>	<i>NRF2</i>	Nuclear factor, erythroid 2 like 2	32715783; 27784786

Supplementary Table S7 (continued)

ORC2	ORC2L	Origin recognition complex subunit 2	27052177
PAF1	<i>F23149_1, FLJ11123, PD2</i>	PAF1 homolog, Paf1/RNA polymerase II complex component	24360965
PAQR3	-	Progestin and adipoQ receptor family member 3	25706881
PARP1	<i>ADPRT, PARP, PPOL</i>	Poly(ADP-ribose) polymerase 1	22053002; 20832725
PAX6	<i>AN, AN2, D11S812E, WAGR</i>	Pax6	27617035
PCGF6	<i>MBLR, RNF134</i>	Polycomb group ring finger 6	27498878
PHF20	<i>C20orf104, dJ1121G12.1, TDRD20A</i>	PHD finger protein 20	28808306; 29452418
PHF8	<i>JHDM1F, KDM7B, KIAA1111, ZNF422</i>	PHD finger protein 8	20208542; 20023638; 28734980
POLR2A	<i>POLR2, POLRA, RPB1</i>	RNA polymerase II subunit A	18042645
PRDM9	<i>KMT8B, MSBP3, PFM6, ZNF899</i>	PR/SET domain 9	31562180; 22028627
PRMT5	<i>HRMT1L5, SKB1, SKB1Hs</i>	Protein arginine methyltransferase 5	22231400
PRMT6	<i>FLJ10559, HRMT1L6</i>	Protein arginine methyltransferase 6	26848759; 18077460; 22777353; 32047419
PRMT7	<i>FLJ10640, KIAA1933</i>	Protein arginine methyltransferase 7	22231400
RBBP5	<i>RBQ3, SWD1</i>	RB binding protein 5, histone lysine methyltransferase complex subunit	24550525; 24715476; 29498679; 29871872
RBP2	<i>CRABP-II, CRBP2, CRBPII, RBPC2</i>	Retinol binding protein 2	17320160; 24726409; 21604327; 26811384; 27578789; 22012258; 32160530
SALL4	<i>dJ1112F19.1, ZNF797</i>	Spalt like transcription factor 4	28974232
SDC1	<i>CD138, SDC, SYND1, syndecan</i>	Syndecan 1	29871872
SETD1A	<i>KIAA0339, KMT2F, Set1</i>	SET domain containing 1A	21335234; 28298643; 28028175; 32663628; 23353889; 22843687; 22067449; 28515277; 24247718; 30753586; 26352678; 25373480
SETD1B	<i>KIAA1076, KMT2G, Set1B</i>	SET domain containing 1B	24081332; 30753586; 26352678; 32094334
SETD7	<i>KIAA1717, KMT7, SET7, SET7/9, Set9</i>	SET domain containing lysine methyltransferase 7	30674889
SIN3A	<i>DKFZP434K2235, KIAA0700</i>	SIN3 transcription regulator family member A	28028175
SIRT1	<i>SIR2L1</i>	Sirtuin 1	24672028; 25485577
SKP2	<i>FBL1, FBXL1, p45</i>	S-phase kinase associated protein 2	25596733
SMYD3	<i>KMT3E, ZMYND1, ZNFXN3A1</i>	SET and MYND domain containing 3	30646949; 29746925; 32779886; 22194464; 26350217; 26350214
SPP1	<i>BNSP, BSPI, ETA-1, OPN</i>	Secreted phosphoprotein 1	23511748; 29444070; 29871872
SSBP3	<i>CSDP, FLJ10355, SSDP, SSDP1</i>	Single stranded DNA binding protein 3	31186351
STAT1	<i>ISGF-3, STAT91</i>	Signal transducer and activator of transcription 1	30231913
STAT2	<i>STAT113</i>	Signal transducer and activator of transcription 2	30231913
SUB1	<i>p14, p15, PC4</i>	SUB1 homolog, transcriptional regulator	26350217
SUPT6H	<i>KIAA0162, SPT6H, SPT6</i>	SPT6 homolog, histone chaperone	22843687
TET1	<i>bA119F7.1, CXXC6, KIAA1676, LCX</i>	Tet methylcytosine dioxygenase 1	31551408

Supplementary Table S7 (continued)

<i>TET2</i>	<i>FLJ20032, KIAA1546</i>	Tet methylcytosine dioxygenase 2	23353889
<i>TRIM28</i>	<i>KAP1, PPP1R157, RNF96, TF1B, TIF1B</i>	Tripartite motif containing 28	23169648
<i>UHRF1</i>	<i>FLJ21925, ICBP90, Np95, RNF106, TDRD22</i>	Ubiquitin like with PHD and ring finger domains 1	32358021
<i>USF1</i>	<i>bHLHb11, MLTF1, UEF</i>	Upstream transcription factor 1	23754954
<i>UTY</i>	<i>KDM6AL, KDM6C</i>	Ubiquitously transcribed tetratricopeptide repeat containing, Y-linked	32732223
<i>WDR5</i>	<i>CFAP89, SWD3</i>	WD repeat domain 5	29649410; 31844669; 28487115; 32440219; 24715476; 27346354; 29498679; 29871872
<i>YY1</i>	<i>DELTA, INO80S, NF-E1, UCRBP, YIN-YANG-1</i>	YY1 transcription factor	28580685
<i>ZFP36L2</i>	<i>BRF2, ERF2, RNF162C, TIS11D</i>	ZFP36 ring finger protein like 2	29408237
<i>ZNF479</i>	<i>KR19</i>	Zinc finger protein 479	31138789

Supplementary Table S8. Transcription factor lists in the Venn diagrams.

Transcription factor lists in Supplementary Information Fig. S3 Venn diagram (a)	
90 elements included exclusively in "4-cell":	ATF3, ATF4, BARHL1, CDX2, CEBPA, CEBPB, CEBPD, CEBPE, CEBPG, CNOT6, CTCF, DBP, DDIT3, ELF1, ELF2, ELF4, EN1, EN2, ESRRB, ETV2, ETV7, FOXC1, FOXC2, FOXS1, GATA1, GLIS1, HIC2, HNF1A, HNF4G, HOMEZ, HOXA13, HOXB2, JUN, KLF16, KLF7, LEF1, MAFA, MEIS1, MGA, MYC, NRL, ONECUT1, ONECUT2, ONECUT3, OTX1, OVOL1, PAX3, PAX7, POU4F1, POU4F2, POU4F3, POU6F1, PRDM5, RFX5, SETDB1, SOX1, SOX10, SOX2, STAT5A, TBP, TBX15, TGIF1, TGIF2, TGIF2LX, TGIF2LY, TRIM28, ZBTB11, ZBTB12, ZFP62, ZFP90, ZNF131, ZNF160, ZNF19, ZNF195, ZNF263, ZNF274, ZNF283, ZNF296, ZNF333, ZNF34, ZNF429, ZNF442, ZNF467, ZNF502, ZNF524, ZNF669, ZNF676, ZNF709, ZNF76, ZNF821
40 elements included exclusively in "8-cell":	BACH1, BACH2, BDP1, BRF1, EZH2, FHL2, GTF2I, KLF3, MAF, MAFF, MTF1, MYCN, NFE2, NFE2L1, NFE2L2, NFE2L3, NFIA, NFIC, NHLH1, NR3C1, OLIG2, PLAG1, SALL2, SEMA4A, SMAD4, SOCS4, TBX3, TCF3, TCF4, ZBTB3, ZNF235, ZNF239, ZNF284, ZNF285, ZNF304, ZNF335, ZNF33A, ZNF362, ZNF664, ZSCAN29
50 elements included exclusively in "ICM":	ARID3A, BHLHE40, BHLHE41, CTBP1, DUS3L, EBF1, EGR1, EGR2, EGR3, EGR4, ESR2, FGF19, GTF3C2, GTF3C5, HLCS, IRF1, JUND, KLF6, MXD4, NR1H2, NR1H3, NR1H4, NR1I2, NR1I3, NR2F6, PDS5A, PIK3C3, PIR, PLAGL1, POLR3G, RARB, RNF114, RORA, RXRB, SMPX, SP2, SP4, SPZ1, TAGLN2, TOB2, UBB, UGP2, ZBTB7A, ZBTB7B, ZEB1, ZFY, ZNF121, ZNF358, ZNF768, ZNF787
14 common elements in "4-cell" and "8-cell":	CHD1, GCM1, GCM2, HES7, KLF13, MAFB, MAFG, MAFK, MZF1, OTX2, OVOL2, RAX, RELA, ZNF425
21 common elements in "4-cell" and "ICM":	CUX1, HNF4A, KDM5A, KLF17, KLF18, NR2F1, NR2F2, PBX1, PBX3, RARA, RHOXF1, RXRA, SP3, SP6, SP7, SP8, SP9, TFAP2A, TFAP2B, TFAP2D, TFAP2E
50 common elements in "8-cell" and "ICM":	AFF4, AKR1A1, APEX1, CBX7, CEBPZ, E2F1, GTF3A, H2AFY, HIVEP2, IKZF1, IRF3, KLF2, KLF4, KLF5, MTHFD1, NAP1L1, NYFB, NXPH3, PAX5, POLR3A, PURA, RAB7A, SMAD3, SMAD5, SMAP2, SMARCA4, SMC3, SP1, TFCP2, TRIM21, TRMO, UBP1, WT1, ZFX, ZNF112, ZNF155, ZNF214, ZNF221, ZNF222, ZNF223, ZNF226, ZNF227, ZNF230, ZNF233, ZNF234, ZNF503, ZNF770, ZXDA, ZXDB, ZXDC
17 common elements in "4-cell", "8-cell" and "ICM":	CRX, EOMES, EP300, HNF1B, KLF15, PITX1, PITX2, PITX3, POLR2A, RAD21, RARG, SREBF1, SREBF2, TCF12, TFAP2C, ZNF224, ZNF384
Transcription factor lists in Supplementary Information Fig. S3 Venn diagram (b)	
88 elements included exclusively in "4-cell":	ATF3, ATF4, BARHL1, CDX2, CEBPA, CEBPB, CEBPD, CEBPE, CEBPG, CNOT6, CTCF, DBP, DDIT3, ELF1, ELF2, ELF4, EN1, EN2, ESRRB, ETV2, ETV7, FOXC1, FOXC2, FOXS1, GATA1, GLIS1, HIC2, HNF1A, HNF4G, HOMEZ, HOXA13, HOXB2, JUN, KLF16, KLF7, LEF1, MAFA, MEIS1, MGA, NRL, ONECUT1, ONECUT2, ONECUT3, OTX1, OVOL1, PAX3, PAX7, POU4F1, POU4F2, POU4F3, POU6F1, PRDM5, RFX5, SETDB1, SOX1, SOX10, SOX2, STAT5A, TBP, TBX15, TGIF1, TGIF2, TGIF2LX, ZBTB11, ZBTB12, ZFP62, ZFP90, ZNF131, ZNF160, ZNF19, ZNF195, ZNF263, ZNF274, ZNF283, ZNF296, ZNF333, ZNF34, ZNF429, ZNF442, ZNF467, ZNF502, ZNF524, ZNF669, ZNF676, ZNF709, ZNF76, ZNF821
20 common elements in "4-cell" and "ICM":	CUX1, HNF4A, KLF17, KLF18, NR2F1, NR2F2, PBX1, PBX3, RARA, RHOXF1, RXRA, SP3, SP6, SP7, SP8, SP9, TFAP2A, TFAP2B, TFAP2D, TFAP2E
1 common elements in "4-cell", "ICM" and "Literature Retrieval":	KDM5A
2 common elements in "4-cell" and "Literature Retrieval":	MYC, TRIM28
14 common elements in "4-cell" and "8-cell":	CHD1, GCM1, GCM2, HES7, KLF13, MAFB, MAFG, MAFK, MZF1, OTX2, OVOL2, RAX, RELA, ZNF425

Supplementary Table S8 (continued)

16 common elements in "4-cell", "8-cell" and "ICM":	CRX, EOMES, EP300, HNF1B, KLF15, PITX1, PITX2, PITX3, RAD21, RARG, SREBF1, SREBF2, TCF12, TFAP2C, ZNF224, ZNF384
1 common elements in "4-cell", "8-cell", "ICM" and "Literature Retrieval":	POLR2A
0 common element in "4-cell", "8-cell" and "Literature Retrieval":	-
39 elements included exclusively in "8-cell":	BACH1, BACH2, BDP1, BRF1, EZH2, FHL2, GTF2I, KLF3, MAF, MAFF, MTF1, MYCN, NFE2, NFE2L1, NFE2L3, NFIA, NFIC, NHLH1, NR3C1, OLIG2, PLAG1, SALL2, SEMA4A, SMAD4, SOCS4, TBX3, TCF3, TCF4, ZBTB3, ZNF235, ZNF239, ZNF284, ZNF285, ZNF304, ZNF335, ZNF33A, ZNF362, ZNF664, ZSCAN29
50 common elements in "8-cell" and "ICM":	AFF4, AKR1A1, APEX1, CBX7, CEBPZ, E2F1, GTF3A, H2AFY, HIVEP2, IKZF1, IRF3, KLF2, KLF4, KLF5, MTHFD1, NAP1L1, NFYB, NXPH3, PAX5, POLR3A, PURA, RAB7A, SMAD3, SMAD5, SMAP2, SMARCA4, SMC3, SP1, TFCP2, TRIM21, TRMO, UBP1, WT1, ZFX, ZNF112, ZNF155, ZNF214, ZNF221, ZNF222, ZNF223, ZNF226, ZNF227, ZNF230, ZNF233, ZNF234, ZNF503, ZNF770, ZXDA, ZXDB, ZXDC
0 common element in "8-cell", "ICM" and "Literature Retrieval":	-
1 common element in "8-cell" and "Literature Retrieval":	NFE2L2
49 elements included exclusively in "ICM":	ARID3A, BHLHE40, BHLHE41, CTBP1, DUS3L, EBF1, EGR1, EGR2, EGR3, EGR4, FGF19, GTF3C2, GTF3C5, HLCS, IRF1, JUND, KLF6, MXD4, NR1H2, NR1H3, NR1H4, NR1I2, NR1I3, NR2F6, PDS5A, PIK3C3, PIR, PLAGL1, POLR3G, RARB, RNF114, RORA, RXRB, SMPX, SP2, SP4, SPZ1, TAGLN2, TOB2, UBB, UGP2, ZBTB7A, ZBTB7B, ZEB1, ZFY, ZNF121, ZNF358, ZNF768, ZNF787
1 common element in "ICM" and "Literature Retrieval":	ESR2
90 elements included exclusively in "Literature Retrieval":	ADNP, ARNTL, ASH1L, ASH2L, ASXL1, ATXN1, BCOR, BMI1, CBL, CBX8, CCL1, CCNY, CDC73, CTR9, CUL4A, CUL4B, CXXC1, DET1, DNMT1, DNMT3A, DNMT3B, DNMT3L, DPY30, EPB41L4A, FBXO25, HBB, HIRA, IL13, IL6, ISL1, KAT8, KDM1A, KDM2A, KDM2B, KDM3A, KDM3B, KDM5B, KDM5C, KDM5D, KDM6A, KLF1, KMT2A, KMT2B, KMT2C, KMT2D, KMT2E, LMNA, LOXL2, MEF2C, MEN1, MKL1, MORF4L1, ORC2, PAF1, PAQR3, PARP1, PAX6, PCGF6, PHF20, PHF8, PRDM9, PRMT5, PRMT6, PRMT7, RBBP5, RBP2, SALL4, SDC1, SETD1A, SETD1B, SETD7, SIN3A, SIRT1, SKP2, SMYD3, SPP1, SSBP3, STAT1, STAT2, SUB1, SUPT6H, TET1, TET2, UHRF1, USF1, UTY, WDR5, YY1, ZFP36L2, ZNF479

ICM, inner cell mass.